

Preliminary Application for Site Certificate for the Speedway Energy Facility

Exhibit G. Fish and Wildlife Habitat

**Submitted to
Oregon Energy Facility Siting Council**

Prepared for



Speedway Energy

BGTF Speedway Project LLC

Prepared by



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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
APLIC	Avian Powerline Interaction Committee
Applicant	BGTF Speedway Project LLC
ASC	Application for Site Certificate
BGEPA	Bald and Golden Eagle Protection Act
BPA	Bonneville Power Administration
CPE	Columbia Plateau Ecoregion
ECPG	Eagle Conservation Plan Guidance
Facility	Speedway Energy Facility
HMP	Habitat Mitigation Plan
NHD	National Hydrography Dataset
NWI	National Wetlands Inventory
OAR	Oregon Administrative Rules
ODA	Oregon Department of Agriculture
ODFW	Oregon Department of Fish and Wildlife
ORBIC	Oregon Biodiversity Information Center
PWCA	Priority Wildlife Connectivity Area
PV	photovoltaic
REWI	Renewable Energy Wildlife Institute
SGCN	Species of Greatest Conservation Need
SMU	Species Management Units
USFWS	U.S. Fish and Wildlife Service
WMMP	Wildlife Monitoring and Mitigation Plan

1.0 Introduction

BGTF Speedway Project LLC (Applicant) proposes construction and operation of the Speedway Energy Facility (Facility), a renewable energy facility incorporating wind, solar, and battery energy storage, located on privately owned land in unincorporated Sherman County, Oregon. The Facility's proposed point of interconnection to the regional electrical grid will be via a new Bonneville Power Administration (BPA) switchyard to be located adjacent to the existing BPA 500-kilovolt Ashe-Marion Transmission Line, which runs northeast/southwest through the site boundary.

The information contained herein supports demonstration of compliance with the Fish and Wildlife Habitat approval standard for Oregon Administrative Rules (OAR) 345-022-0060. Exhibit G provides information on the fish and wildlife habitats and species that could be affected by the Facility, other than state threatened, endangered, and candidate species that are exclusively addressed in Exhibit H – Threatened and Endangered Species.

2.0 Analysis Area

The analysis area for fish and wildlife habitat is the proposed site boundary plus a 0.5-mile buffer, as defined by OAR 345-001-0010(35)(c) and as confirmed by the May 2026 Project Order (ODOE 2026). The site boundary is defined in detail in the Background Information Exhibit. The analysis area is shown on Figure G-1.

3.0 Agency Consultation

The Applicant consulted with the Oregon Department of Fish and Wildlife (ODFW) regarding the appropriate protocols for documenting the presence of state sensitive and state threatened and endangered species and the classification of fish and wildlife habitat. Virtual meetings occurred on May 10, 2024, and February 26, 2026, during which ODFW representatives approved of the wildlife survey protocols and provided additional input on wildlife species to include in surveys.

Additionally, the Applicant met virtually with ODFW on June 15, 2026, to discuss habitat mitigation.

The Applicant contacted the Oregon Department of Agriculture (ODA) to request concurrence with the field survey methods specific to botanical surveys (Section 4.2.2). An email was sent on January 20, 2026, and ODA provided concurrence with the methods on June 4, 2026.

4.0 Description of Biological and Botanical Surveys – OAR 345-022-0060(3)(a)

(3) To assist the Council in determining whether the standard outlined in (1) through (2) has been met, the Applicant must submit information about the fish and wildlife habitat and the fish and

wildlife species, other than the species addressed in OAR-022-0070(3) (the Threatened and Endangered Species Exhibit) that could be affected by the proposed facility, providing evidence to support a finding by the Council as required by this rule. The applicant must include:

(a) A description of biological and botanical surveys performed that support the information in this exhibit, including a discussion of the timing and scope of each survey;

4.1 Information Review

Prior to conducting field surveys, the Applicant conducted a desktop review of existing information regarding habitat types and special status fish and wildlife species with the potential to occur in the analysis area. The term “special status species” includes federal and state endangered, threatened, proposed, and candidate fish, wildlife, and plant species, as well as state sensitive and sensitive-critical wildlife species, golden and bald eagles, and birds of conservation concern with distribution or potential to occur in the analysis area.

The Applicant reviewed habitat and range information for special status fish and wildlife species known to occur in Sherman County and the Columbia Plateau to develop the list of species that had the potential to occur within the analysis area (ODFW 2021a; ODFW 2021b; ODFW 2026a; ORBIC 2019; ORBIC 2025a; OSU 2014; Sullivan et al. 2009; USFWS 2021; USFWS 2024a; USFWS 2025a; Verts and Carraway 1998). Species were eliminated from consideration if their habitat was absent from the analysis area, or their range did not overlap with the analysis area; species were included if they have the potential for vagrancy at the Facility. The Applicant also reviewed aerial photographs, National Wetlands Inventory (NWI) data, the National Hydrography Dataset (NHD), ODFW big game winter range, and ODFW Priority Wildlife Connectivity Areas (PWCAs) spatial data to preliminarily identify habitats within the analysis area (ODFW 2013a; ODFW 2023; USFWS 2025b; USGS 2025).

In addition to reviewing publicly available sources, the Applicant submitted a request to the Oregon Biodiversity Information Center (ORBIC) to obtain site-specific records of special status species occurrences within 5 miles of the site boundary (ORBIC 2025b, ORBIC 2026). Data obtained from the Oregon Eagle Foundation (Leal 2020) was reviewed prior to initiation of the raptor nest surveys. Prior to conducting bat acoustic surveys, the Applicant reviewed information on bat hibernacula in the vicinity of the Facility, and the migratory status of bat species with potential to occur at the Facility (Perkins et al. 1990; ODFW 2025; ODFW 2026a).

4.2 Field Surveys

The Applicant conducted field surveys for the Facility between 2023 and 2026 (only raptor nest surveys were conducted in 2023). Methods for studies were consistent with standards presented in the Oregon Columbia Plateau Ecoregion Wind Energy Siting and Permitting Guidelines (ODFW et al. 2008).

Table G-1 provides a summary of biological field surveys conducted to date within the site boundary and within portions of the analysis area. The survey reports are included in Attachment G-1, and the Wetland and Other Waters Delineation (Figure O1-2) is included in Exhibit O1 –

Wetlands and Other Waters. Figure G-2 shows the extent of habitat, special status wildlife, and botanical surveys within the analysis area conducted between 2024 and 2026. Surveys for habitat and special status wildlife were not conducted on approximately 1,694 acres of the site boundary as these areas will not be used for Facility development. After habitat and special status wildlife field surveys in 2026, an additional 449 acres of the site boundary were removed from consideration for development and will be avoided. These approximately 2,143 acres are depicted as “Area Will not be Developed” in Figure G-2.

Table G-1. Summary of Field Surveys Conducted at the Facility in 2023–2026

Survey	Survey Timing	Reference	Extent
Habitat categorization and special status wildlife surveys	April and July 2024 June 2025 April 2026	Attachment G-1	Site boundary (where accessible)
Botanical surveys	July 2024 June -July 2025 June 2026 (Report pending) ¹		Site boundary (where accessible)
Bat acoustic survey	March – November 2025		Five stations distributed within the site boundary.
Eagle and avian use surveys ²	April 2025 – March 2026		Seventeen 0.5-mile (800-meter) radius survey plots within the site boundary. ²
Raptor nest surveys	April and June 2023		Site boundary at the time of surveys, plus a 2-mile buffer.
	March and May 2025		Site boundary at the time of surveys, plus a 2-mile buffer.
	February and April 2026		Site boundary plus 2-mile buffer.
Wetlands and waters surveys	May – June 2024 April 2025 April 2026	Figure O1-2 of Exhibit O1 – Wetlands and Other Waters	Site boundary (where accessible).
1. Additional surveys for botanical resources occurred in mid-June 2026 within portions of the site boundary that were not previously surveyed (see Figure G-2). A botanical report for these surveys will be submitted to ODOE in August 2026. 2. In order to ensure that point-count locations covered at least 30 percent of the site boundary, two additional survey plot locations will be surveyed for avian and eagle use between April 2026 and March 2027. A second year of eagle use surveys will be conducted at the original survey plot locations in 2026-2027, and a second year of eagle use surveys will be conducted at the two additional survey plots in 2027-2028.			

4.2.1 Habitat Categorization and Special Status Wildlife Surveys

Habitat categorization and special status wildlife surveys were performed within the site boundary in 2024, 2025, and 2026 (Figure G-2; Attachment G-1). The objective of the surveys was to categorize habitats per the habitat categories set forth in ODFW’s Fish and Wildlife Mitigation Policy (OAR 635-415-0025) and to document the presence of special status wildlife species.

During the habitat categorization survey, habitat categories established by the ODFW Fish and Wildlife Habitat Mitigation Policy were used to rank the habitat subtypes present within the site boundary. Habitat mapping was performed using a minimum of 1-acre mapping unit. Surveys were conducted by biologists familiar with Columbia Plateau Ecoregion habitats and wildlife species. Meandering transects were walked by the biologists to categorize the composition and structure of habitat by noting the dominant vegetation and plant species composition, presence of weedy species, existing disturbance, and the likelihood of habitat use by local fauna. Based on the observed characteristics, vegetation within the survey area was assigned a habitat type, subtype, and habitat quality category as outlined in Section 5.2. Following field surveys, the digitized boundaries of each habitat polygon were downloaded and processed in a geographic information system (GIS), and the field datasheets were incorporated into the spatial data. Data were reviewed for quality control and processed to incorporate wetlands and waters data. For the portions of the analysis area that were not covered by the survey, habitat mapping is based on a desktop analysis using aerial photography interpretation and the Applicant's familiarity with the area based on surveys conducted within the site boundary.

Special status wildlife surveys were conducted concurrently with habitat categorization surveys. The objective of the special status wildlife survey was to document the presence of any special status species within the survey area, general wildlife species, and raptor nests, with a focus on ground-nesting species that are not typically detected during aerial raptor nest surveys such as burrowing owl (*Athene cunicularia hypugaea*). During surveys, the biologists walked meandering transects through non-cultivated areas, scanning and listening for wildlife species and recognizable signs of wildlife (e.g., scat, tracks, burrows, and nests). Agricultural areas were surveyed by visually scanning and listening for wildlife from accessible roads or bordering non-agricultural lands. When observed, the biologists documented the location of special status species, or recognizable sign, and recorded the number of individuals and their behavior. Following the survey, the digitized data were downloaded and processed using GIS software and reviewed for quality control and assurance.

4.2.2 Botanical Surveys

Botanical field surveys were conducted in July 2024, June and July 2025, and June 2026 (Attachment G-1; report pending for the 2026 surveys). The purpose of the botanical surveys was to document the presence of federally or state listed endangered, threatened, and candidate vascular plant species and state and county-designated noxious weeds. The surveys were designed in accordance with Oregon Energy Facility Siting Council standards set forth in OAR 345-022-0060(3) and OAR 345-022-0070(3).

A desktop review of existing information to identify federal and state endangered, threatened, proposed, and candidate plant species with the potential to occur in the site boundary was conducted prior to field surveys. No federally listed, proposed, or candidate plant species have the potential to occur; however, one state listed threatened and two state candidate vascular plant species were determined to have potential to occur (ODA 2025a; ODA 2025b). The Applicant also

reviewed lists of species designated as noxious weeds in Oregon and Sherman County (ODA 2025c; Sherman County 2024). Existing literature and other sources were also reviewed to familiarize surveyors with identification of designated noxious weeds that would potentially be encountered.

Surveys were conducted using the Intuitive Controlled survey method, a standard and commonly accepted survey protocol (USFS and BLM 1998). This method incorporates meandering transects that cover the area of interest and target the full array of major vegetation types, aspects, topographical features, habitats, and substrate types. Surveyors searched for target species while traversing the landscape. When high-potential habitat was encountered, surveyors conducted a thorough survey for the target species. The botanist maintained a running list of vascular plant species encountered and made informal collections of unknown species for later identification.

4.2.3 Raptor Nest Surveys

Aerial raptor nest surveys (i.e., raptor nest surveys) were performed by the Applicant in 2023, 2025, and 2026 (Attachment G-1). The survey area of the 2023 and 2025 raptor nest surveys encompassed a 2-mile buffer around the anticipated site boundary at the time the surveys were conducted, while raptor nest surveys conducted in 2026 encompassed a 2-mile buffer around the site boundary assessed in this ASC. In addition, as noted above in Section 4.2.1, ground-based raptor nest surveys were also conducted during special status wildlife surveys.

For each raptor nest survey, two rounds of aerial surveys were conducted to facilitate a complete inventory of nest locations and accurately determine nest occupancy. In 2023, surveys were conducted on April 15 and June 3, in 2025 surveys were conducted on March 11 and May 11, and in 2026 surveys were conducted February 18-19 and April 16-17. The dates for the first round of surveys were timed during the early nesting period when most breeding pairs of raptors in the region exhibit nest-building or incubation behaviors. The second surveys were timed for when most raptors in the region are engaged in mid- to late-breeding season reproductive activities (e.g., brooding, feeding, nestlings).

During both survey rounds, the surveyors checked the status of known raptor nests and searched for new, previously unidentified raptor nests. The surveyors documented all raptor nests, common raven (*Corvus corax*) nests, concentrations of eagle prey resources (e.g., herds of big game, carrion, etc.), and incidental observations of eagles. Although not raptors, common raven nests were documented because they could be used by nesting raptors during subsequent breeding seasons. Data recorded for each raptor nest included, but was not limited to, the date; time; unique nest identification; Universal Transverse Mercator coordinates; species occupying the nest; nest status; and nest condition. Nest status (e.g., active or inactive) was determined using a combination of cues such as adult behavior (e.g., diving, calling, nest building/repair, incubation, brooding, or feeding of young), presence of eggs or young, or whitewash.

4.2.4 Bat Acoustic Surveys

The Applicant conducted bat acoustic monitoring at the Facility from March 31 to November 16, 2025, using five ground-based bat detectors (Wildlife Acoustics Song Meter SM4BAT Bioacoustic Recorder). The ground microphones were mounted at a height of approximately 10 feet (3 meters) to avoid vegetation and minimize environmental effects on the recorded files. The survey spanned the spring migration, summer, and fall migration periods for Oregon's bat species, including migratory and non-migratory species. Detector stations were chosen based on available bat habitat, land access, and representative habitat types found within the site boundary. The bat detectors recorded bat activity from 1 hour before sunset until 1 hour after sunrise each day. Following field surveys, the bat acoustic data were analyzed using a two-step process: 1) filter data to remove non-bat sounds and assign an initial species or group classification with a U.S. Fish and Wildlife Service (USFWS)-approved software program (USFWS 2025c), and then 2) manually review and validate a subset of this data using the same software's spectrogram platform to confirm species presence.

The acoustic data were then processed using SonoBat Bat Call Analysis Software (SonoBat, Inc.; Version 30.2.20250526) with the Eastern Washington regional classifier, which includes species expected to occur in eastern Oregon. During manual review, a recording was considered suitable for species level identification if 1) the recording included search phase pulses, 2) the individual call pulses within the bat pass were not oversaturated, and when possible, 3) the individual call pulses included the presence of harmonics. Bat passes lacking characteristics to allow classification to the species level were classified as "unidentified high frequency bat" if the characteristic frequency was greater than or equal to 35 kilohertz and "unidentified low frequency bat" if the characteristic frequency was less than 35 kilohertz. Manual vetting aimed to confirm at least one bat pass per detected species per station per month. The number of bat passes per detector-night was used as an index of bat activity (Attachment G-1).

4.2.5 Eagle and Avian Use Surveys

The Applicant is currently conducting eagle and avian use surveys at the Facility. The results of monthly avian use surveys conducted between April 11, 2025, and March 5, 2026, are provided in Attachment G-1. As noted below, avian use surveys at the Facility will continue through 2027 and eagle use surveys will continue through 2028. Survey protocols follow methods consistent with the National Wind Coordinating Collaborative's Comprehensive Guide to Studying Wind Energy/Wildlife Interactions (Strickland et al. 2011), Tier 3 of the voluntary USFWS Land-based Wind Energy Guidelines (USFWS 2012), Stage 2 of the USFWS Eagle Conservation Plan Guidance (ECPG; USFWS 2013), and the 2024 Eagle Rule Revision (USFWS 2024b).

Between April 11, 2025, and March 5, 2026, eagle use and avian use surveys were conducted consecutively once a month within 17 half-mile (800-meter) radius survey plots (Attachment G-1). To ensure that survey plots covered at least 30 percent of the minimum convex polygon around turbine locations per recommendations in the USFWS ECPG (USFWS 2013), two additional survey plot locations were added and will be surveyed for avian and eagle use between April 2026 and

March 2027. A second year of eagle use surveys will be conducted at the 17 original survey plot locations between April 2026 and March 2027, and a second year of eagle use surveys will be conducted at the two additional points between April 2027 and March 2028.

Survey plot locations were selected in locations that maximized 360-degree sight distance for observers and covered a diversity of habitats. Survey points were non-overlapping and were representative of the habitat types and variation in topography within the site boundary. Seasons were defined as spring (April to May 2025 and March 2026), summer (June to August 2025), fall (September to November 2025), and winter (December 2025 and January to February 2026). Eagle and avian use surveys were completed once monthly, resulting in three survey periods per season, for a total of 12 survey periods over the reporting period.

During each eagle use survey, an experienced avian surveyor positioned at the center of the survey plot continuously scanned the surrounding landscape for eagle activity. If an eagle was observed, the surveyor recorded the species, age class (adult, immature, or unknown), time first and last observed, minimum and maximum flight heights, and flight behavior. The surveyor recorded the total time that an eagle spent flying within the 800-meter radius survey plot and divided the flights into two height categories: at or below 200 meters and over 200 meters above the ground. Flight paths were drawn electronically using topographic maps and aerial imagery of the site boundary. Each eagle use survey was conducted for 60 minutes at each survey plot location during each survey period, for a total of 204 survey hours. Surveys were conducted during daylight hours, and the order in which points were surveyed was altered between subsequent rounds so that each point was surveyed at different times of the day over the reporting period. The results of eagle use surveys were used to inform the assessment of eagle use of the Facility described briefly in this exhibit.

The avian use surveys were conducted at the same survey plot locations used for the eagle use surveys. Each avian use survey was conducted for 20 minutes at each location during each survey period, for a total of 68 survey hours. The surveyor recorded visual and aural detections of birds within the 800-meter radius survey plot. For each detection, the surveyor recorded the species, number of individuals, time of detection, height above ground, and behavior. The surveyor estimated flight heights and distances using existing reference points such as meteorological towers and local transmission lines, as well as landscape contours shown on topographic maps. The results of avian use surveys were used to inform the assessment of impacts to state sensitive species described in this exhibit.

4.2.6 Wetlands and Waters Surveys

Tetra Tech conducted pedestrian surveys to delineate wetlands and other waters within the site boundary on May 13-17 and June 24-28, 2024, April 9-19, 2025, and April 20-26, 2026. Prior to the surveys, the Applicant reviewed NWI data (USFWS 2025b), the NHD (USGS 2025), Statewide Wetland Inventory data (SWI 2025), hydric soils data (USDA 2025), multiple aerial images and LiDAR data to identify potential wetlands and other waters prior to performing field work. Areas that appeared to be saturated/inundated, have distinct changes in vegetation, or areas that

appeared to be greener than surrounding vegetation on aerial images were identified via polygon and investigated in the field. LiDAR was used to identify depressions and swales or valleys that were not already mapped with an NWI or NHD feature.

Most of the wetland boundaries were mapped based on a distinct change in vegetation or elevation. If a stream was less than 6 feet wide, the centerline was collected and maximum width recorded. Wetlands were classified based on Cowardin (Cowardin et al. 1979) and the Guidebook for Hydrogeomorphic-based Assessment (Adamus 2001). Data collected during wetlands and waters surveys informed habitat categorization and helped with the determination of state sensitive species presence described in this exhibit. Results from the wetlands and waters surveys conducted between 2024 and 2026 are summarized in Exhibit O1 and Figure O1-2.

5.0 Identification of Habitat – OAR 345-022-0060(3)(b)(c)

(b) Identification of all fish and wildlife habitat in the analysis area, classified by the general fish and wildlife habitat categories as set forth in OAR 635-415-0025 and the sage-grouse specific habitats described in the Greater Sage-Grouse Conservation Strategy for Oregon at OAR 635-140-0000 through 635-140-0025 (core, low density, and general habitats), and a description of the characteristics and condition of that habitat in the analysis area, including a table of the areas of permanent disturbance and temporary disturbance (in acres) in each habitat category and subtype;

(c) A map showing the locations of the habitat identified in (b);

5.1 ODFW Habitat Categorization

The ODFW Fish and Wildlife Habitat Mitigation Policy (OAR 635-415-0025) provides a framework for assigning one of six categories to habitats based on the relative importance of these habitats to fish and wildlife species. The ODFW definition of each habitat category is shown in Table G-2.

Table G-2. ODFW Habitat Categorization

ODFW Habitat Category	Definition¹
1	Irreplaceable, essential habitat for a fish or wildlife species, population, or a unique assemblage of species and is limited on either a physiographic province or site-specific basis, depending on the individual species, population or unique assemblage.
2	Essential habitat for a fish or wildlife species, population, or unique assemblage of species and is limited either on a physiographic province or site-specific basis depending on the individual species, population or unique assemblage.
3	Essential habitat for fish and wildlife, or important habitat for fish and wildlife that is limited either on a physiographic province or site-specific basis, depending on the individual species or population.
4	Important habitat for fish and wildlife species.
5	Habitat for fish and wildlife having high potential to become either essential or important habitat.
6	Habitat that has low potential to become essential or important habitat for fish and wildlife.

5.2 Description of Fish and Wildlife Habitat in the Analysis Area

Table G-3 describes habitat categories and types found within the analysis area, including the vegetation and other characteristics of each habitat type and category. During field surveys, the Applicant identified habitat that met the definitions for Category 2, 3, 4, 5, and 6 habitats (Attachment G-1). As shown in Table G-3, based on consultation with ODFW, areas of the site boundary which overlaps with the ODFW-designated Mule Deer Winter Range (ODFW 2013a) are considered Category 2 habitat, excluding the agricultural areas that remain Category 6 (ODFW 2013b). Additional details describing the vegetation within the site boundary can be found in the Habitat Categorization and Special Status Wildlife Survey Report, 2024-2026 (Attachment G-1).

Table G-3. Habitat Types and Categories within the Analysis Area

Habitat Type	Habitat Subtype	Category 2	Category 3	Category 4	Category 5	Category 6
Big Game Winter Range Habitat Overlay applies to all habitat sub-types except for cropland (i.e., Wheat Fields and Other Row Crops) and developed areas (i.e., Urban and Mixed Environs)		Mule Deer Winter Range as designated by ODFW (2013a).	N/A	N/A	N/A	N/A
Open Water – Lakes, Rivers, Streams	Permanent Ponds/Lakes Open water areas, including natural lakes, reservoirs, stock ponds, beaver ponds	Natural lakes or beaver ponds with high-quality habitat.	Most other open water areas with lower-quality habitat (for example, some habitat requisites missing or bullfrogs abundant).	Highly degraded open water area, dominated by non-native vegetation or no vegetation around margins (for example, highly degraded stock pond).	N/A	N/A
	Seasonal Ponds Open water areas that contain water part of the year	Seasonal ponds with high quality, mostly native vegetation.	<i>Seasonal ponds with lower-quality habitat that is still dominated by native plant species.</i>	Highly degraded, with a higher proportion of non-native vegetation or no vegetation around margins (for example, a seasonal stock pond).	Habitat almost completely dominated by non-native plant species or otherwise highly degraded.	N/A
	Perennial Streams Streams mapped by USGS having permanent (year-round) flow	Fish-bearing natural stream channels that support native, migratory fish based on StreamNet data or input from ODFW fish biologists; and provides good spawning (gravel beds present, non-embedded) and/or rearing habitat, with native emergent, shrub, or forested riparian margins.	Fish-bearing natural stream channels that do not support native, migratory fish based on StreamNet data or input from ODFW fish biologists; and provide marginal spawning (gravel present in pockets/30% embedded) and/or rearing habitat; or non-fish-bearing natural stream channels that drain into fish-bearing streams based on StreamNet data.	<i>Non-fish-bearing natural stream channels that do not directly drain into fish-bearing streams.</i>	N/A	N/A
	Intermittent or Ephemeral Streams Streams mapped by USGS as intermittent	Fish-bearing natural stream channels that support native, migratory fish based on StreamNet data or input from ODFW fish biologists; and provides good spawning (gravel beds present, non-embedded) and/or rearing habitat, with native emergent, shrub, or forested riparian margins.	Fish-bearing natural stream channels that do not support native, migratory fish based on StreamNet data or input from ODFW fish biologists; and provide marginal spawning (gravel present in pockets/30% embedded) and/or rearing habitat; or non-fish-bearing natural stream channels which drain into fish-bearing streams based on StreamNet data.	Non-fish-bearing natural stream channels that do not directly drain into fish-bearing streams.	Non-fish-bearing ephemeral streams or excavated channels with high restoration potential; not important habitat.	N/A
Wetlands	Emergent Wetlands Emergent wetlands with herbaceous vegetation	High quality habitat, dominated by native species.	Mixture of native and non-native plant species and low to moderate disturbance	<i>Mixture of native and non-native plant species and moderate to high disturbance</i>	Farmed or previously filled wetlands; highly disturbed, dominated by non-native plant species.	N/A
	Scrub-shrub Wetlands Wetlands with woody vegetation less than 20 feet tall	High quality habitat, dominated by native plant species.	Mixture of native and non-native plant species and low to moderate disturbance.	N/A	<i>Farmed or previously filled wetlands; highly disturbed, dominated by non-native plant species.</i>	N/A
	Forested Wetlands Forests (defined as areas with a minimum of 40% canopy closure > 20	Exceptional habitat; well-buffered, with few or no non-native plant species, relatively undisturbed surroundings, or	<i>Mixture of native and non-native plant species at sapling, pole, sawtimber stage.</i>	N/A	N/A	N/A

Preliminary Application for Site Certificate Exhibit G. Fish and Wildlife Habitat						
Habitat Type	Habitat Subtype	Category 2	Category 3	Category 4	Category 5	Category 6
	feet tall), dominated by wetland indicator species	part of a large wetland complex, old-growth, or large sawtimber stage.				
Riparian- Forest, Natural Shrubland, or Emergent Complexes	Eastside (Interior) Riparian-Forested or Natural Shrubland	High quality, diverse riparian areas that are not degraded	<i>Typical mid-seral riparian, provides wildlife habitat</i>	<i>Provides marginal habitat; somewhat degraded.</i>	<i>Highly degraded; dominated by non-native plant species.</i>	N/A
	Eastside (Interior) Riparian - Emergent	High quality, riparian areas that are not degraded and are dominated by native species	Riparian areas that are moderately degraded but provide wildlife habitat	<i>Provides marginal habitat; moderately degraded with a higher proportion of non-native species.</i>	Highly degraded; dominated by non-native plant species.	N/A
Upland Grassland, Shrub-steppe and Shrubland	Eastside Grasslands Grassland areas with few shrubs (<10% shrub cover) (not irrigated or cultivated/planted)	Undisturbed habitat dominated by native species (i.e., greater than 75% ground cover is native), or moderately disturbed habitat (i.e., between 50 to 75% ground cover is native) that contains a sagebrush component	Moderately disturbed habitat with a mix of natives and non-natives (i.e., between 50 to 75% ground cover is native), or highly disturbed habitat (i.e., between 15 to 50% ground cover is native) that contains a sagebrush component	Highly disturbed habitat with a high percentage of non-native plant species (i.e., between 15 to 50% ground cover is native), or very highly disturbed habitats (i.e., less than 15% ground cover is native) that contain a sagebrush component	Very highly disturbed habitats with a high percentage of non-native plant species (i.e., less than 15% ground cover is native), but which do not contain a sagebrush component	N/A
	Rabbitbrush / Snakeweed Shrubland Grassland and shrubland mosaic, with a dominate shrub mix of rabbitbrush and snakeweed providing at least 10% ground cover, and not containing a sagebrush component	Undisturbed habitat dominated by native species (i.e., greater than 75% ground cover is native) with a dominant rabbitbrush and/or snakeweed component.	Moderately disturbed habitat with a mix of natives and non-natives (i.e., between 50 to 75% ground cover is native), with a dominant rabbitbrush and/or snakeweed component.	Highly disturbed habitat with a high percentage of non-native plant species (i.e., between 15 to 50% ground cover is native), with a dominant rabbitbrush and/or snakeweed component.	Very highly disturbed habitats with a high percentage of non-native plant species (i.e., less than 15% ground cover is native), with a dominant rabbitbrush and/or snakeweed component.	N/A
	Sagebrush Shrub-Steppe Grassland and shrubland mosaic, containing a sagebrush component	High degree of cover; contains native shrubs, sagebrush and native grasses; good structure/forage for wildlife. Understory dominated by native species. More diversity than Category 3 habitat.	Habitat with sagebrush that is limited within the area (e.g., relatively undisturbed habitat); high degree of cover; moderate cover by weeds, moderate structure/forage for wildlife.	Important wildlife habitat that contains sagebrush and is moderately to heavily degraded and weedy habitat.	Very low quality dominated by non-native species but with a sagebrush component; with high restoration potential.	N/A
Agriculture, Pasture, and Mixed Environs	Planted Grasslands Grasslands that appear to have been planted, possibly part of the Conservation Reserve Program (CRP)	Croplands planted to high quality grassland with characteristics necessary to provide essential habitat for sensitive wildlife due to cover and forage quality.	Croplands planted to grassland with characteristics necessary to potentially provide essential habitat for sensitive wildlife due to cover and forage quality.	Croplands planted to grassland that lack later seral stage vegetative communities or are of less importance as wildlife habitat due to management or location.	Croplands planted to grassland that lack later seral stage vegetative communities and are highly disturbed or degraded, and have high restoration potential.	N/A
	Orchards, Vineyards, Wheat Fields, Other Row Crops	N/A	N/A	N/A	N/A	Active agricultural areas with low potential for restoration.
	<i>Irrigated Pastures and Hay Meadows</i>	N/A	N/A	<i>Potential habitat for wildlife.</i>	N/A	N/A
<i>Cliffs, Caves, and Talus</i>		<i>Sites with known bat colonies.</i>	<i>Sites without known bat colonies.</i>	N/A	N/A	N/A
Urban and Mixed Environs		N/A	N/A	N/A	N/A	All developed areas.
Note: Italicized text describes habitat subtypes and categories not found within the analysis area but presented for comparative purposes. No Category 1 habitat occurs within the analysis area.						

5.3 Quantity of Habitat Types within the Analysis Area

Table G-4 shows the acreages of each habitat subtype and assigned habitat category within the analysis area based on the results of the field surveys conducted within the site boundary and the desktop analysis conducted outside the site boundary as described in Section 4.2.1. Table G-4 provides both the preliminary habitat category based on vegetative characteristics as well as the final habitat category following application of the Mule Deer Winter Range overlay. The location of each habitat type and category within the analysis area are shown on Figures G-3 and G-4, as directed by OAR 345-022-0060(3)(c). Presence of a particular habitat category within the analysis area does not indicate that this habitat will necessarily be impacted by the Facility. A table of the areas of permanent disturbance and temporary disturbance (in acres) in each habitat category and habitat subtype are presented in Section 8 with the discussion of potential impacts to fish and wildlife habitat.

Table G-4. Acres of Habitat Categories, Types, and Subtypes within the Analysis Area

Final Habitat Category ¹	Preliminary Habitat Category ²	Habitat Type	Habitat Subtype	Acres within Analysis Area
2	2	Upland Grassland, Shrub-steppe and Shrubland	Eastside Grasslands	3,130
			Rabbitbrush/Snakeweed Shrubland	1,154
			Sagebrush Shrub-steppe	1,446
		Open Water -- Lakes, Rivers, Streams	Intermittent or Ephemeral Streams	4
			Perennial Streams	4
		Riparian Forest and Natural Shrubland Complexes	Eastside (Interior) Riparian- Emergent	<1
		Wetlands	Emergent Wetlands	6
			Forested Wetlands	<1
			Scrub-shrub Wetlands	1
	3	Agriculture, Pasture, and Mixed Environs	Planted Grasslands	41
		Upland Grassland, Shrub-steppe and Shrubland	Eastside Grasslands	2,133
			Rabbitbrush/Snakeweed Shrubland	116
			Sagebrush Shrub-steppe	911
		Open Water -- Lakes, Rivers, Streams	Intermittent or Ephemeral Streams	1
			Perennial Streams	<1
			Permanent Ponds/Lakes	<1
		Riparian Forest and Natural Shrubland Complexes	Eastside (Interior) Riparian- Emergent	69
		Wetlands	Emergent Wetlands	18
			Scrub-shrub Wetlands	3

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Final Habitat Category¹	Preliminary Habitat Category²	Habitat Type	Habitat Subtype	Acres within Analysis Area
	4	Upland Grassland, Shrub- steppe and Shrubland	Eastside Grasslands	570
			Rabbitbrush/Snakeweed Shrubland	91
		Open Water -- Lakes, Rivers, Streams	Seasonal Ponds	3
		Wetlands	Emergent Wetlands	<1
	5	Upland Grassland, Shrub- steppe and Shrubland	Eastside Grasslands	21
		Open Water -- Lakes, Rivers, Streams	Intermittent or Ephemeral Streams	10
			Seasonal Ponds	2
3	3	Agriculture, Pasture, and Mixed Environs	Planted Grasslands	1,191
		Upland Grassland, Shrub- steppe and Shrubland	Eastside Grasslands	4,640
			Rabbitbrush/Snakeweed Shrubland	398
			Sagebrush Shrub-steppe	1,309
		Open Water -- Lakes, Rivers, Streams	Intermittent or Ephemeral Streams	3
			Perennial Streams	2
			Permanent Ponds/Lakes	39
		Riparian Forest and Natural Shrubland Complexes	Eastside (Interior) Riparian- Emergent	321
			Eastside (Interior) Riparian- Forested or Natural Shrubland	7
		Wetlands	Emergent Wetlands	143
			Scrub-shrub Wetlands	1
4	4	Agriculture, Pasture, and Mixed Environs	Planted Grasslands	541
		Upland Grassland, Shrub- steppe and Shrubland	Eastside Grasslands	1,132
			Rabbitbrush/Snakeweed Shrubland	690
			Sagebrush Shrub-steppe	27
		Open Water -- Lakes, Rivers, Streams	Intermittent or Ephemeral Streams	7
			Permanent Ponds/Lakes	1
			Seasonal Ponds	15
		Wetlands	Emergent Wetlands	<1
5	5	Agriculture, Pasture, and Mixed Environs	Planted Grasslands	213
		Upland Grassland, Shrub- steppe and Shrubland	Eastside Grasslands	1,691
			Rabbitbrush/Snakeweed Shrubland	58
			Sagebrush Shrub-steppe	58

Final Habitat Category ¹	Preliminary Habitat Category ²	Habitat Type	Habitat Subtype	Acres within Analysis Area
		Open Water -- Lakes, Rivers, Streams	Intermittent or Ephemeral Streams	62
			Seasonal Ponds	7
		Riparian Forest and Natural Shrubland Complexes	Eastside (Interior) Riparian- Emergent	34
		Wetlands	Emergent Wetlands	2
6	6	Agriculture, Pasture, and Mixed Environs	Orchards, Vineyards, Wheat Fields, Other Row Crops	21,361
		Urban and Mixed Environs	Urban and Mixed Environs	600
Total				44,284
Note: Numbers may not sum correctly due to rounding. 1. Habitat category following application of Mule Deer Winter Range. 2. Habitat category based on vegetative characteristics. 3. Acres represent area within the analysis area; not impact areas. Impacts are discussed in Section 8.0.				

6.0 Identification of State Sensitive Species and ODFW Site-Specific Issues of Concern – OAR 345-022-0060(3)(d)

(d) Based on consultation with the Oregon Department of Fish and Wildlife (ODFW) and appropriate field study and literature review, identification of all State Sensitive Species that might be present in the analysis area and a discussion of any site-specific issues of concern to ODFW;

6.1 State Sensitive Species

Based on the information review and field surveys (see Section 4.0), 18 state sensitive species, 2 eagle species, and one ODFW species of concern have potential to occur in the analysis area (Table G-5). State endangered, threatened, and candidate species are addressed in Exhibit H. Of the 18 state sensitive species that have potential to occur in the analysis area, 7 are sensitive-critical and 11 are sensitive in the Columbia Plateau Ecoregion. These species include 5 mammals, 10 birds, 2 reptiles, and 1 fish species (as further discussed below). While not state sensitive species, bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) are addressed briefly in this document as species of concern protected under the Bald and Golden Eagle Protection Act (BGEPA). The white-tailed jackrabbit, a state Species of Greatest Conservation Need (SGCN; ODFW 2026a), is addressed at the request of ODFW even though it is not a state sensitive species in the Columbia Plateau Ecoregion.

Fish species determined by ODFW to be sensitive are described through Species Management Units (SMUs) per the Native Fish Conservation Policy (OAR 635-007-0504(6)). A query of the StreamNet database (StreamNet 2026) and the Applicant's request for information from ORBIC (ORBIC 2025b;

ORBIC 2026) identified one sensitive fish species (steelhead [*Oncorhynchus mykiss*]/Middle Columbia River SMU/ Evolutionary Significant Unit, summer run) with potential to occur in the analysis area (Table G-5). Within the analysis area, Rosebush Creek and Grass Valley Canyon provide habitat for this species (StreamNet 2026).

Table G-5. State Sensitive Species with the Potential to Occur within the Analysis Area

Common Name	Scientific Name	ODFW ¹ Status in Columbia Plateau Ecoregion	Expected Habitat	Expected / Likelihood of Occurrence within Site Boundary	Observed Occurrence within Site Boundary ²	Potential Use of Habitat within Analysis Area
Mammals						
Hoary bat	<i>Lasiurus cinereus</i>	S	Forested upland habitats, including junipers. Long-distance migrant.	High	Documented during 2025 Bat Acoustic Surveys.	Limited foraging habitat available. Probable transient during migration periods.
Pallid bat	<i>Antrozous pallidus</i>	S	Caves/karst, desert scrub, grassland, and shrubland. Non-migratory.	High	Documented during 2025 Bat Acoustic Surveys.	Potential foraging habitat available. Limited potential summer and winter habitat available, including karst formations present within rock outcrops and cliffs.
Silver-haired bat	<i>Lasionycteris noctivagans</i>	S	Northern temperate conifer and mixed conifer-hardwood forest. Generally found in association with riparian areas.	High	Documented during 2025 Bat Acoustic Surveys.	Limited foraging habitat available. Probable transient during migration periods.
Spotted bat	<i>Euderma maculatum</i>	S	Uses crevices in cliffs, caves and canyon walls for day and nights roosts. Will also roost in trees at night and typically forage in meadows, shrub-steep, or water sources.	High	Documented during 2025 Bat Acoustic Surveys.	Potential foraging habitat available. Potential roosting habitat in karst formations present within rock outcrops and cliffs. Potential transient during migration periods.
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	SC	Found in natural caves, mines, and buildings in the summer. Hibernates October to April in caves and mines.	High	Documented during 2025 Bat Acoustic Surveys.	Limited foraging habitat available. Potential transient during migration periods.
White-tailed jackrabbit	<i>Lepus townsendii</i>	None ³	Found in bunchgrass grasslands and sagebrush plains.	High	Jackrabbit scat observed during 2024-2026 special status wildlife surveys.	Breeding, foraging, transient in shrub-steppe and grasslands.
Birds						
Bald eagle	<i>Haliaeetus leucocephalus</i>	None ⁴	Typically builds its nest in tall, sturdy trees near water sources, such as rivers, lakes, and coastlines where it can find fish, its primary food source. Known to scavenge opportunistically on carcasses in otherwise unsuitable habitat particularly during winter and migration.	High	One active nest observed during 2026 raptor nest surveys. Also incidentally observed during 2025 raptor nest surveys and observed during 2025-2026 eagle and avian use surveys and 2024-2026 special status wildlife surveys.	Nesting and potential scavenging habitat available within analysis area.
Brewer's sparrow	<i>Spizella breweri breweri</i>	S	Migrant and summer resident that uses sagebrush shrublands, generally with a canopy height greater than 5 feet. Typically nests in brush or in clumps of grass.	High	Observed during 2024-2026 special status wildlife surveys; also observed during 2025-2026 eagle and avian use surveys.	Sagebrush and other shrubland habitat available within the analysis area.
Burrowing owl (Western)	<i>Athene cunicularia hypugaea</i>	SC	Occurs in open grassland and shrub-steppe habitats as well as highly disturbed habitats such as agricultural areas. Typically nests in burrows excavated by burrowing mammals. Spring and summer resident that travels south for warmer climates during the winter.	Low	None	Nesting and foraging habitat available within the analysis area.

Common Name	Scientific Name	ODFW ¹ Status in Columbia Plateau Ecoregion	Expected Habitat	Expected / Likelihood of Occurrence within Site Boundary	Observed Occurrence within Site Boundary ²	Potential Use of Habitat within Analysis Area
Common nighthawk	<i>Chordeiles minor</i>	S	Long-distance migrant present in Oregon during its breeding season, from May to August. Inhabits any kind of open or semi-open terrain. Nesting habitat is characterized by open landscapes with little ground cover and is most abundant in sagebrush and rocky scablands and rimrock habitats of eastern Oregon. Tends to roost and nest on bare ground, including gravel roads.	High	Observed during 2024-2026 special status wildlife surveys.	Limited nesting habitat and suitable foraging habitat available within the analysis area.
Ferruginous hawk	<i>Buteo regalis</i>	SC	Found in open, arid landscapes. Species often uses grasslands and shrub-steppe with scattered shrubs or trees for perching and nesting. Also nests on cliffs, rimrock, and hillsides.	Moderate	One active ferruginous hawk nest observed near but outside (approximately 0.2 miles to the west) of the site boundary during 2026 raptor nest surveys.	Nesting and foraging habitat available within the analysis area.
Golden eagle	<i>Aquila chrysaetos</i>	None ⁴	Inhabits a variety of habitats including forests, canyons, shrub lands, grasslands, and oak woodlands. Nests on cliffs, utility towers, or in large trees. Forages in open habitats.	High	Incidentally observed during 2025 raptor nest surveys; also observed during 2025-2026 eagle and avian use surveys.	Limited cliff and tree nesting habitat available. Foraging habitat available throughout most of the analysis area.
Grasshopper sparrow	<i>Ammodramus savannarum</i>	S	Migrant and summer resident east of the Cascades. Occurs in dry grassland habitat, generally with low to moderate grass height and low percent shrub cover.	High	Observed during 2024-2026 special status wildlife surveys; also observed during 2025-2026 eagle and avian use surveys.	Breeding and foraging habitat available throughout the analysis area.
Lewis's woodpecker	<i>Melanerpes lewis</i>	SC	Ponderosa pine forests, oak woodlands, oak-pine woodlands, cottonwood riparian forests, and areas burned by wildfires.	Low	None	Limited habitat available. Potential transient.
Loggerhead shrike	<i>Lanius ludovicianus</i>	S	Found in a variety of open, brushy habitats, including agricultural areas. In Oregon, often uses tall sagebrush for nesting and roosting and open areas with grasses and significant bare ground for foraging.	High	Observed during 2024-2026 special status wildlife surveys; also observed during 2025-2026 eagle and avian use surveys.	Breeding and foraging habitat available.
Long-billed curlew	<i>Numenius americanus</i>	SC	Prefers open habitat with relatively short grass and little woody vegetation but can occur in dryland wheat.	Moderate	None	Potential to nest and forage in shorter grass areas or cropland. Possible migrant.
Sagebrush sparrow	<i>Artemisiospiza nevadensis</i>	SC	Nests in shrub-steppe habitats. Requires high shrub cover and is closely associated with big sagebrush (<i>Artemisia tridentata</i>). During migration and in winter associated with dry shrublands and grasslands.	Low	None	Sagebrush habitat available within the analysis area.
Swainson's hawk	<i>Buteo swainsoni</i>	S	Open-country specialists that hunt and forage in grassland, shrub-steppe, and agricultural areas. Nests are frequently in lone trees or isolated shrubs in open country.	High	Active nest observed within the site boundary during the 2026 raptor nest surveys. Active nests also observed adjacent to but just outside the site boundary during 2023 and 2025 raptor nest surveys. Also observed during 2024-2026 special status wildlife surveys and 2025-2026 eagle and avian use surveys.	Nesting and foraging habitat available within the analysis area.
Reptiles						
California mountain kingsnake	<i>Lampropeltis zonata</i>	S	Pine forests, oak woodlands, and chaparral. Usually found in, under, or near rotting logs in open wooded areas near streams.	Limited	None	Limited suitable habitat within the analysis area.
Northern sagebrush lizard	<i>Sceloporus graciosus graciosus</i>	S	Closely associated with steppe habitat with sandy soils and sparse vegetation in the grass/forb layer. Also occurs in chaparral, juniper woodlands, and coniferous forests.	Moderate	None	Suitable sagebrush habitat available within the analysis area.
Fish						

Common Name	Scientific Name	ODFW ¹ Status in Columbia Plateau Ecoregion	Expected Habitat	Expected / Likelihood of Occurrence within Site Boundary	Observed Occurrence within Site Boundary ²	Potential Use of Habitat within Analysis Area
Steelhead / (Middle Columbia River Species Management Unit/ ESU, summer run)	<i>Oncorhynchus mykiss</i>	SC	Require streams with clean gravel, complex habitat, and cool temperatures for spawning and rearing. Require access for anadromous migration.	High	Not observed; however, surveys not specifically conducted for fish. Per ORBIC (2026) and StreamNet (2026), Rosebush Creek is habitat for this run within the site boundary.	Habitat limited to Rosebush Creek and Grass Valley Canyon.
Species and status: ODFW 2021a; ODFW 2026a; ORBIC 2019, 2025a 1. ODFW Status: S = State Sensitive; SC = State Sensitive–Critical 2. Documented occurrence: Habitat Categorization and Special Status Wildlife Surveys — Attachment G-1; Exhibit G, Section 4.2.1 Raptor Nest Surveys — Attachment G-1; Exhibit G, Section 4.2.3 Bat Acoustic Surveys — Attachment G-1; Exhibit G, Section 4.2.4 Eagle and Avian Use Surveys — Attachment G-1; Exhibit G, Sections 4.2.5 3. This species is not a sensitive species in the Columbia Plateau ecoregion; however, it is an SGCN and is included in this table as requested by ODFW. 4. Protected by the Bald and Golden Eagle Protection Act						

6.2 ODFW Site-Specific Issues of Concern

ODFW identified big game as a site-specific issue at the Facility, as ODFW-mapped Mule Deer Winter Range overlaps part of the western portion of the analysis area (Figure G-3). The Applicant has worked with ODFW to avoid, minimize, and mitigate impacts to big game, as described in Section 9.0. The Applicant is also working with ODFW to provide mitigation for impacts to big game winter range habitat, which ODFW considers to be Category 2 habitat (except areas designated as Category 6 habitat).

ODFW also identified wildlife habitat fragmentation as a site-specific concern. PWCAs, which are areas on the landscape ODFW has identified as best facilitating wildlife movement between patches of habitat, overlap portions of the analysis area (Figure G-3). In response to this concern, the Applicant has modified the Facility layout to avoid and set back Facility components away from PWCAs to the maximum extent feasible, such as in the southern portion of the site boundary.

The potential of the Facility to impact bats, raptors, and state sensitive and state SGCN—such as Brewer’s sparrow, sagebrush sparrow, white-tailed jackrabbit, and North American porcupine—were also identified as a site-specific concern by ODFW. At the request of ODFW, in addition to sensitive species such as Brewer’s sparrow and sagebrush sparrow, special status wildlife surveys included white-tailed jackrabbit as a target species (see Sections 4.2.1 and 7.1.1). As recommended by ODFW, the Applicant conducted bat acoustic surveys within the site boundary (see Sections 4.2.4 and 7.1.4), as well as raptor nest surveys within the site boundary plus a 2-mile buffer (see Sections 4.2.3 and 7.1.3). The Applicant will also implement temporal and spatial construction activity restrictions around active raptor nests as further discussed in Section 9.0.

7.0 Baseline Survey of Habitat Use by State Sensitive Species – OAR 345-022-0060(3)(e)

(e) A baseline survey of the use of habitat in the analysis area by species identified in (d) performed according to a protocol approved by the Department and ODFW;

The desktop analysis described in Section 4.1 was performed to determine which sensitive species may utilize the habitats available within the analysis area for breeding, foraging, or stop-over habitat during migration. Table G-5 includes a description of expected habitat for each sensitive or otherwise applicable species with the potential to occur in the analysis area, whether the species is known or expected to occur within the site boundary and analysis area, and the potential for each species’ use of the habitats identified within the analysis area. Baseline field surveys, including habitat categorization and special status wildlife surveys, botanical surveys, raptor nest surveys, bat acoustic surveys, eagle and avian use surveys, and wetland and waters surveys, were completed in 2023 through 2026. Additional surveys for eagle and avian use are planned for the summer of 2026 and through 2028, respectively, as described in Section 4.2. Results of the surveys are summarized below; Attachment G-1 provides additional details on survey methods and results.

7.1 Results of Field Surveys

7.1.1 Special Status Wildlife Species Surveys

The locations of state sensitive species detected during special status wildlife surveys are shown on Figure G-5. Additionally, the habitat within which each observation occurred is described in Table G-6. Field surveys were designed to document state sensitive species if present, and targeted areas likely to support these species; however, species not documented during surveys were not necessarily considered absent from the analysis area, as the probability of detection of individual species is dependent on many factors including activity patterns of the species, timing of surveys, amount of time surveyors were present in a particular area, and detectability of the species. Additionally, field surveys may not have documented all habitat use by an observed species.

In addition to documenting sensitive species, wildlife surveys also documented raptor nests, with a focus on ground-nesting species that are not typically detected during aerial raptor nest surveys such as burrowing owl. In 2024, surveyors noted one in-use red-tailed hawk nest (Figure G-6) and one inactive nest of an unknown raptor species, and, in 2025, one inactive nest of an unknown raptor species was identified.

Table G-6. Habitat Use by State Sensitive Species Observed within the Analysis Area during Special Status Wildlife Species Surveys 2024–2026

Species	ODFW Status ¹ in the Columbia Plateau	Number of Individual Observations Within Analysis Area	Habitat Subtypes of Observed Individuals (Number of Individuals)
Brewer's sparrow <i>Spizella breweri breweri</i>	S	1	Eastside Grasslands (1)
Common nighthawk <i>Chordeiles minor</i>	S	1	Eastside Grasslands (1)
Grasshopper sparrow <i>Ammodramus savannarum</i>	S	13	Eastside Grasslands (13)
Loggerhead shrike <i>Lanius ludovicianus</i>	S	3	Rabbitbrush/Snakeweed Shrubland (2) Sagebrush Shrub-steppe (1)
Swainson's hawk <i>Buteo swainsoni</i>	S	3	Eastside Grasslands (2) Urban and Mixed Environs (1)
Jackrabbit ² <i>Lepus</i> sp.	SGCN ²	2	Eastside Grasslands (2)
1. S = Sensitive Species, SGCN = Species of Greatest Conservation Need 2. White-tailed jackrabbit (<i>Lepus townsendii</i>) is not considered a sensitive species in the Columbia Plateau ecoregion, but is considered a Species of Greatest Conservation Need of interest to ODFW at this Facility. During surveys, only scat was observed and this scat could not be reliably distinguished between white-tailed and black-tailed jackrabbit (<i>Lepus californicus</i>) scat.			

7.1.2 Raptor Nest Surveys

The results from aerial raptor nest surveys performed in 2023, 2025, and 2026 summarized here and depicted in confidential Figure G-6 only include active (in-use) nests of raptor species (Figure G-6 is submitted under separate confidential cover). Only a portion of the analysis area was surveyed during the 2023 surveys, while the entire analysis area was surveyed during the 2025 and 2026 surveys (confidential Figure G-6). Complete results, including inactive and unknown nests, can be found in the individual survey reports (Attachment G-1).

Raptor nest surveys conducted in 2023 within 1 mile of the site boundary at the time of the surveys documented eight active nests, including two active Swainson's hawk (*Buteo swainsoni*) nests. Other active raptor nests documented during 2023 surveys included five red-tailed hawk (*Buteo jamaicensis*) nests and one great horned owl (*Bubo virginianus*) nest. Six of these nests were located within the analysis area, including both Swainson's hawk nests (confidential Figure G-6.1). A data review performed prior to the 2023 raptor nest surveys did not identify any known bald eagle or golden eagle nest records within the 2023 raptor nest survey area (Attachment G-1). No bald or golden eagles were incidentally observed during the 2023 surveys.

Raptor nest surveys conducted in 2025 within 2 miles of the site boundary at the time of the surveys documented 39 active nests and one alternate nest. This included five active Swainson's hawk nests, one active golden eagle nest, and one alternate golden eagle nest. Other active nests documented during 2025 surveys included 17 red-tailed hawk, eight common raven, six great horned owl and one prairie falcon (*Falco mexicanus*) nests, as well as two active nests where the species was unable to be determined because only unattended eggs were present at the nests. Twelve of the active nests documented during the 2025 surveys are located within the analysis area, including one active Swainson's hawk nest (confidential Figure G-6.2). Four golden eagles and three bald eagles were incidentally observed during the 2025 surveys. Most of the incidental eagle observations were within the southern portion of the survey area. Two of the golden eagles and all of the bald eagles incidentally observed were recorded during the initial survey, indicating those eagles were probably migrants. Two of the golden eagles were observed during the second survey and were observed within 2 miles of the active and alternate nests documented during the surveys, indicating the eagles may have been associated with those nests. All three of the bald eagles were observed within the site boundary, while one of the golden eagles was observed within the site boundary and one was observed within the analysis area outside of the site boundary. Eagle prey concentrations observed incidentally during the surveys consisted of two herds of elk, each with 20 to 30 individuals, observed in the eastern portion of the survey area (Attachment G-1).

Raptor nest surveys conducted in 2026 within 2 miles of the site boundary documented 43 active nests, including one active bald eagle nest, one active ferruginous hawk nest, and one active Swainson's hawk nest (confidential Figure G-6.4). Other active nests documented during 2026 surveys included 19 red-tailed hawk, 15 common raven, four great horned owl, one Cooper's hawk (*Accipiter cooperii*) and one prairie falcon nests. Thirteen of these nests were found within the analysis area, including the active Swainson's hawk, bald eagle, and ferruginous hawk nests. A data review performed prior to the 2026 raptor nest surveys identified one historical golden eagle nest

record within the survey area, which was confirmed to no longer be present during the previous year's survey in 2025 (Attachment G-1). Surveys in 2026 confirmed that no nest was present at this location. No bald or golden eagles were incidentally observed during the 2026 surveys. Eagle prey concentrations observed incidentally during the surveys consisted of one herd of elk, each with 50 individuals, observed in the southeastern portion of the survey area; several herds of mule deer with 6-20 individuals in the northern and western portions of the survey area; and two herds of bighorn sheep with 3-5 individuals in the canyonlands in the southwestern portion of the survey area (Attachment G-1).

7.1.3 Bat Acoustic Surveys

During the 2025 bat acoustic surveys, a total of 61,378 bat passes were recorded and identified to the species level, resulting in an overall activity rate of 55.4 bat passes/detector-night. Activity rates across all detectors ranged from 1.0 bat passes/detector night to 209.6 at passes/detector night, with the greatest rate occurring at Station ORBH-01, located in the southwestern portion of the site boundary near Finnegan Creek (Attachment G-1). Bat activity was recorded for the entire survey period (March 1 – November 15, 2025), with the highest activity rates detected during April and May, followed by a sharp decline through summer, and a brief increase in September. This suggests that reduced resident (non-migratory) bat activity occurs in the area during summer months, while activity for most species occurred during migratory periods. Migratory species accounted for more than 90 percent of all bat passes identified to species. Non-migratory species showed peak activity during June through September.

Fourteen bat species were detected at one or more of the five acoustic monitoring sites (i.e., stations) during acoustic surveys. Five of these species are state sensitive in the Columbia Plateau:

- Hoary bat (<1.0 percent of the total passes recorded);
- Pallid bat (<1.0 percent of the total passes recorded);
- Silver-haired bat (1.7 percent of the total passes recorded);
- Spotted bat (<1.0 percent of the total passes recorded); and
- Townsend's big-eared bat (<1.0 percent of the total passes recorded).

Hoary bat and silver-haired bat were detected at all five stations, pallid bat was detected at three stations (ORBH-01, ORBH-02, and ORBH-04), Townsend's big-eared bat was detected at two locations (ORBH-01 and ORBH-02), and spotted bat was detected at one location (ORBH-02). Overall, Station ORBH-01 recorded the highest number of bat passes among all detector stations, likely due to its location in sagebrush/scrub habitat with minimal tall vegetation, a seasonal pool, and adjacent cliff faces in Finnegan Creek.

Other species detected included Yuma myotis (*Myotis yumanensis*, 18.3 percent of the total passes recorded), western small-footed myotis (*Myotis ciliolabrum*, 16.4 percent of the total passes recorded), California myotis (*Myotis californicus*; 2.5 percent of the total passes recorded), canyon bat (*Parastrellus hesperus*; 2 percent of the total passes recorded), little brown bat (*Myotis lucifugus*; 1.7 percent of the total passes recorded), long-eared myotis (*Myotis evotis*, <1.0 percent of the total

passes recorded), big brown bat (*Eptesicus fuscus*, <1 percent of the total passes recorded), long-legged myotis (*Myotis volans*; <1 percent of the total passes recorded), and fringed myotis (*Myotis thysanodes*, <1 percent of the total passes recorded). Three of these species—California myotis, fringed myotis, and long-legged myotis—detected during surveys are not considered state sensitive in the Columbia Plateau ecoregion but are considered sensitive species in other ecoregions in the state (ODFW 2021a). Unidentified high-frequency bats and unidentified low-frequency bats accounted for 52.2 percent and 2.2 percent of the total passes recorded, respectively.

7.1.4 Eagle and Avian Use Surveys

Eleven golden eagles and 29 bald eagles were observed within the survey area during or incidental to the eagle use surveys conducted April 11 through March 5, 2026 (Attachment G-1). Seven of the golden eagle observations and 22 of the bald eagle observations were observed within the 800-meter radius survey plots and the remaining individuals were observed incidentally.

Within the survey plots, golden eagles were observed during all survey seasons with two observations recorded during the spring, two observations recorded during the summer, two observations recorded during the fall, and one observation recorded during the winter season. Five of the bald eagle observations were recorded during the spring, eight were recorded during the fall, and nine were recorded during the winter.

Eighty-eight avian species were observed during avian use surveys, none of which are state or federal endangered, threatened, or candidate species. Species observed included songbirds, waterfowl, pigeons/doves, cranes/rails, waterbirds, swifts/hummingbirds, woodpeckers, gamebirds, and raptors (Attachment G-1). The overall mean use for all species and seasons was 43.77 birds/20 minutes. Mean use was the highest in fall (74.12 birds/20 minutes), followed by winter (56.60 birds/20 minutes), spring 2026 (23.75 birds/20 minutes), summer (22.27 birds/20 minutes) and spring 2025 (21.76 birds/20 minutes). Songbirds comprised 76 percent of all bird observations and were the most frequently detected species group. Three species—red-winged blackbird (*Agelaius phoeniceus*), horned lark (*Eremophila alpestris*), and European starling (*Sturnus vulgaris*)—accounted for 57.9 percent of all birds observed at the site. Raptors comprised 2.8 percent of all bird observations, and red-tailed hawk (*Buteo jamaicensis*), northern harrier (*Circus hudsonius*), and American kestrel (*Falco sparverius*) were the most frequently detected raptor species. While overall mean use for all bird species was the highest in the fall, seasonal mean use by raptors peaked during the summer season, primarily driven by turkey vultures (*Cathartes aura*).

Four state sensitive birds within the Columbia Plateau were detected during avian use surveys including Brewer's sparrow, grasshopper sparrow, loggerhead shrike, and Swainson's hawk. Swainson's hawk was the most frequently detected sensitive species (21 individuals observed) and was detected during the spring and summer seasons. Fifty-four Swainson's hawk individuals were also incidentally observed during the avian use surveys. Brewer's sparrow and grasshopper sparrow were only observed in the summer, and only one individual of each of these species was observed. Loggerhead shrike (4 total birds observed) was detected during the spring, summer, and fall seasons.

8.0 Description of Potential Adverse Impacts – OAR 345-022-0060(3)(f)

(f) A description of the nature, extent and duration of potential adverse impacts on the habitat identified in (b) and species identified in (d) that could result from construction, operation and retirement of the proposed facility;

Construction and operation of the Facility would result in both permanent and temporary impacts to wildlife and their habitats. Due to the multi-year construction schedule of the Facility, both permanent and temporary impacts to fish and wildlife habitat will occur in phases over this time period. Permanent impact areas are those that will be converted from the existing condition to a different condition for the life of the Facility. Temporary impact areas are those areas that would be disturbed during construction activities but that will then be restored and revegetated following construction. Habitat mitigation, wildlife monitoring, and vegetation management associated with construction and operation are discussed in the Draft Habitat Mitigation Plan (HMP; Attachment G-2), Draft Wildlife Monitoring and Mitigation Plan (Attachment G-3), and Draft Vegetation and Soil Management Plan (Exhibit C – Soil Protection, Attachment C-2), respectively.

8.1 Potential Impacts to Fish and Wildlife Habitat

Potential impacts on fish and wildlife habitat include the temporary and permanent disturbance to habitat associated with the construction and operation of the Facility. Permanent impact areas are those that would be converted from the existing condition to a different condition for the life of the Facility, including within the fenced solar array areas where vegetation may not necessarily be disturbed but the habitat will no longer be available to mule deer and other big game. Temporary impact areas are those areas that would be disturbed during construction activities but would not become permanent parts of the Facility. The acres of temporary and permanent disturbances to wildlife habitat, organized by habitat category, type, and subtype, are summarized in Table G-7. These habitats are described in greater detail in the Habitat Categorization and Special Status Wildlife Survey Report (Attachment G-1). Some impacts will be avoided or minimized as described in Section 9.0. Impacts that cannot be avoided will be mitigated as described in the Draft HMP (Attachment G-2). Impacts to state sensitive species are described in Section 8.2. Impacts to wetlands will be avoided. In some locations, the limits of disturbance overlap wetlands and therefore appear to impact these habitats, as reflected in Table G-7, below. However, impacts to these wetlands will be avoided by spanning these features (by placing aboveground collector line poles on either side of the feature or boring under the feature) or otherwise reducing the impact area to avoid disturbance of these habitats. Similarly, permanent impacts to waters of the state have been intentionally avoided, such as by boring under Rosebush Creek and other waters of the state to ensure there are no permanent impacts to these resources. In addition, other waters of the state within the fenced solar array area are considered permanently impacted for the purposes of estimating habitat impacts but will not be disturbed by the Facility. Minor temporary impacts to other waters of the state are proposed during construction.

The duration of habitat loss in permanent impact areas will be for the life of the Facility, as these areas will contain permanent infrastructure and not be restored following construction. The duration of habitat loss in temporary impact areas varies among habitats, with shrub-steppe habitats generally taking more than 5 years to recover, and grassland up to 5 years (Bakker and van Diggelen 2006; McArthur and Stevens 2004; Pyke et al. 2015; Rosentreter 2005; Wambolt et al. 2001; Watts and Wambolt 1996). Restoration of the temporary impact areas will occur following construction, as described in the Draft Vegetation and Soil Management Plan (Exhibit C, Attachment C- 2).

Table G-7. Potential Impacts by Habitat Category, Type and Subtype

Final Habitat Category ¹	Preliminary Habitat Category ²	Habitat Type	Habitat Subtype	Impacts (Acres)	
				Permanent	Temporary
2	2	Upland Grassland, Shrub-steppe and Shrubland	Eastside Grasslands	835.1	226.6
			Rabbitbrush/Snakeweed Shrubland	179.4	10.7
			Sagebrush Shrub-steppe	71.7	37.3
		Wetlands ³	Emergent Wetlands	-	0.3
	Preliminary Category 2 Total			1,086.2	274.8
2	3	Upland Grassland, Shrub-steppe and Shrubland	Eastside Grasslands	436.6	59.8
		Riparian Forest and Natural Shrubland Complexes	Eastside (Interior) Riparian- Emergent	-	0.4
	Preliminary Category 3 Total			436.6	60.2
2	4	Upland Grassland, Shrub-steppe and Shrubland	Eastside Grasslands	26.6	7.3
			Rabbitbrush/Snakeweed Shrubland	2.9	0.5
	Preliminary Category 4 Total			29.5	7.8
2	5	Upland Grassland, Shrub-steppe and Shrubland	Eastside Grasslands	0.2	0.2
		Open Water – Lakes, Rivers, Streams ³	Intermittent or Ephemeral Streams	<0.1	<0.1
	Preliminary Category 5 Total			0.2	0.2
Category 2 Final Total				1,552.5	343.0
3	3	Agriculture, Pasture, and Mixed Environs	Planted Grasslands	252.4	35.3
			Eastside Grasslands	608.6	227.4

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Final Habitat Category ¹	Preliminary Habitat Category ²	Habitat Type	Habitat Subtype	Impacts (Acres)	
				Permanent	Temporary
		Upland Grassland, Shrub-steppe and Shrubland	Rabbitbrush/Snakeweed Shrubland	1.7	5.6
			Sagebrush Shrub-steppe	6.6	18.5
		Riparian Forest and Natural Shrubland Complexes	Eastside (Interior) Riparian- Emergent	-	1.9
			Eastside (Interior) Riparian- Forested or Natural Shrubland	-	<0.1
		Wetlands ³	Emergent Wetlands	-	0.5
Category 3 Total				869.3	289.3
4	4	Agriculture, Pasture, and Mixed Environs	Planted Grasslands	375.2	9.7
			Upland Grassland, Shrub-steppe and Shrubland	Eastside Grasslands	221.2
		Open Water – Lakes, Rivers, Streams ³	Rabbitbrush/Snakeweed Shrubland	109.5	35.6
			Intermittent or Ephemeral Streams	-	<0.1
			Seasonal Ponds	0.1	-
Category 4 Total				706.0	82.8
5	5	Agriculture, Pasture, and Mixed Environs	Planted Grasslands	<0.1	<0.1
		Upland Grassland, Shrub-steppe and Shrubland	Eastside Grasslands	257.1	37.9
		Open Water – Lakes, Rivers, Streams ³	Intermittent or Ephemeral Streams	0.3	0.2
		Riparian Forest and Natural Shrubland Complexes	Eastside (Interior) Riparian- Emergent	-	<0.1
		Wetlands ³	Emergent Wetlands	<0.1	<0.1
Category 5 Total				257.4	38.1
6	6	Agriculture, Pasture, and Mixed Environs	Wheat Fields and Other Row Crops	4,659.5	874.4
		Urban and Mixed Environs	Urban and Mixed Environs	3.8	15.9
	Category 6 Total			4,663.2	890.3
Grand Total				8,048.4	1,643.6
Note: Totals in this table may not be precise due to rounding. “-” means no acres while <0.1 means greater than zero but less than 0.05 acres.					

Final Habitat Category ¹	Preliminary Habitat Category ²	Habitat Type	Habitat Subtype	Impacts (Acres)	
				Permanent	Temporary
1. Habitat category following application of Mule Deer Winter Range.					
2. Habitat category based on vegetative characteristics.					
3. Impacts to wetlands and waters included in this table are greater than those identified in Sections 3.0 and 4.0 of Exhibit O1 (Wetlands and Other Waters) because this table includes: (1) impacts to non-jurisdictional features and (2) temporary impacts that will actually be avoided during ground disturbing activities (e.g., along the corridor for the above ground 230-kV collector lines where the temporary impact layer shows a crossing of a resource that will be avoided during construction by vehicles and equipment). See Sections 3.1 and 3.2 in Exhibit O1 for proposed impacts to jurisdictional features.					

8.2 Potential Impacts to State Sensitive Species

This section addresses potential adverse impacts to state sensitive species identified in Section 6.0, as well as birds and bats in general. Habitat loss and modification resulting from construction activities will occur in both permanent impact areas and temporary construction areas, and the associated impacts on wildlife will vary by species. In addition to these habitat-related impacts (e.g., habitat loss and modification), potential adverse impacts to sensitive species due to construction and operation activities may include direct fatalities due to construction equipment and vehicles, fatality of birds and bats through collision with rotating turbine blades, collision with solar arrays, security perimeter fencing, aboveground collector lines, vehicles and heavy equipment, disturbance related to artificial lighting and noise, potential nesting and breeding disturbance, disturbance to wintering big game, entrapment within fenced areas, and the introduction of noxious weeds and other non-native invasive species. General disturbance can interrupt normal wildlife behavior, which can have varying effects depending on the species and an individual's ability to tolerate such disturbance. In general, noise and visual disturbance may cause wildlife to avoid typical foraging and breeding areas, or distract them from those activities within those areas, which can result in reduced fitness. The Applicant has proposed several measures to avoid, minimize, and mitigate these effects as described in Section 9.0.

8.2.1 Mammals

8.2.1.1 Bats

Five state sensitive bat species have the potential to occur within the analysis area: hoary bat, pallid bat, silver-haired bat, spotted bat, and Townsend's big-eared bat. All five of these species were detected during bat acoustic monitoring surveys (Table G-5). Hoary bat, pallid bat, spotted bat, and Townsend's big-eared bat were detected in less than 1 percent of the total bat passes, and silver-haired bat was detected in 1.7 percent of total bat passes recorded (Section 7.1.3). Facility components are not located within typical breeding or roosting habitat for these species, and aquatic foraging habitat such as wetlands and ponds are relatively limited within the site boundary (Table G-4). While no cliffs were mapped within the analysis area, a minimum mapping unit of 1 acre was used for the habitat mapping, and scattered cliff faces are likely located within the analysis area along canyon rims adjacent to Finnegan Creek and French Canyon. No turbines are sited near

French Canyon, and the Applicant has set turbines back from Finnegan Creek to the extent feasible, which will minimize impacts to bats and other wildlife and construction; operation of the Facility will have limited impacts to roosting habitat in this area. Similarly, impacts to foraging habitats such as wetlands and waters have largely been avoided. Additionally, construction activities will generally occur during daylight hours when bats are generally absent, and thus construction activities are not anticipated to disturb foraging bats. During operations, any impacts to bats would most likely occur in late summer and fall, during the migratory period for tree-roosting bats.

Collision with solar panels and other solar infrastructure is a potential threat to bats. To date, the effect of solar energy facilities on bats has focused on habitat loss, as bat fatalities at solar energy facilities have not been well described. Several studies from Europe indicate there is a potential for changes in species composition and activity (Szabadi et al. 2023, Tinsley et al. 2023) and reductions in foraging activity (Barre et al. 2023) at solar energy facilities compared to reference sites. Insects may be attracted to lighting around structures, which may in turn attract bats to forage near solar components infrastructure. Thus, artificial lighting at night may increase the risk of collision fatalities. However, the potential for collision risk due to artificial night lights will be avoided and minimized, as described in Section 9.0. As a result, construction and operation of the solar components are anticipated to have minimal impact on these bat species during their migratory period.

Wind turbines represent one of the largest sources of human-caused mortality for bats (Cryan 2011, O'Shea et al. 2016). The Renewable Energy Wildlife Institute (REWI [formerly American Wind Wildlife Institute]) has compiled publicly available bat collision fatality data from wind energy facilities in the United States (REWI 2026). Twenty-two species of bats were recorded as fatalities nationwide. The nationwide median fatality rate was 3.1 bat fatalities per megawatt per year. The USFWS Pacific Region (including Eastern Oregon) had the lowest range median fatality rate (0.73 bat fatalities per megawatt per year) compared to other USFWS Regions (based on 38 Pacific Region studies). In the United States and Canada, approximately 75 percent of all wind energy-related fatalities consist of three species of migratory tree-dwelling bats (hoary bat, eastern red bat [*Lasiurus borealis*], and silver-haired bat), two of which (hoary bat, silver-haired bat) were detected during acoustic monitoring at the Facility. Nationwide, hoary bat had the highest percentage of fatality incidents (30 percent) and the highest frequency of occurrences in post-construction fatality monitoring studies (91 percent; 306 of 338 studies; REWI 2026). In the USFWS Pacific Region, hoary bat and silver-haired bat were the most common bat species found as fatalities; silver-haired bats represented 46.1 percent of total bat fatalities found, while hoary bats accounted for 45.8 percent of total bat fatalities regionally (REWI 2026). The eastern red bat does not occur within the analysis area. All other bat species, including little brown bat which comprised 2.5 percent of fatalities, accounted for less than 3 percent of bat fatalities in the USFWS Pacific Region.

Another source of summary information on direct impacts to bats resulting from collision with wind turbines in the Columbia Plateau Ecoregion (CPE) came from Jansen (2023). A total of 1,124 bat fatalities were documented at 37 wind energy facilities during 48 studies conducted from 1999–2020. The median fatality rate for the CPE was 0.77 bat fatalities per megawatt per year, which was similar to the fatality rate REWI reported for the Pacific Region. Four species of bats

(hoary bat, silver-haired bat, little brown bat, and big brown bat) were recorded as fatalities in the CPE. Similar to other studies, a disproportionate number of migratory tree and leaf roosting bats were found; hoary bat and silver-haired bat comprised nearly 96 percent of all bat fatalities in the CPE. Johnson and Erickson (2011) had previously provided a regional summary and characterization of the effects of wind energy development on birds and bats in the CPE. Compared to 2011, the total number of hoary bat and silver-haired bat fatalities in the CPE nearly doubled with hoary bat replacing silver-haired bat as the species most often found during fatality monitoring (Jansen 2023). There were marginal increases in the total number of fatalities found for other bat species (Jansen 2023).

Because fatalities of hoary bat and silver-haired bat are the most frequently detected species in the region, it is anticipated that the Facility and new wind energy development in the surrounding area would follow a similar pattern and therefore may affect these two species comparatively more than other bat species. The hoary bat and silver-haired bat have been documented as fatalities at wind projects across North America, most frequently in late summer and early fall during migratory periods (Arnett et al. 2008, Arnett et al. 2016, REWI 2026, Kunz et al. 2007, Strickland et al. 2011). Bat fatalities also occur during spring migration for some species at some facilities. Therefore, the greatest risk for migratory bats within the site boundary is likely to occur during migration periods when bats are moving between summer and winter areas. Efforts are underway to understand the scale of existing impacts to the hoary bat population due to wind energy development, and to assess whether projections of future impacts may be confidently made. However, gaps in baseline population size data for this species remain a confounding factor in cumulative impact analyses (Friedenberg and Frick 2021). In Oregon, silver-haired bats and hoary bats rely on late-successional conifer forests for roosting but can be found in other habitats during migration (ODFW 2026a). The greatest risk for migratory bats within the site boundary is likely to occur during migration periods when bats are moving between summer and winter areas.

The highest activity rate (79 percent of all bat passes) during acoustic bat surveys at the Facility was recorded at Station ORBH-01. This station was located near the southwestern border of the site boundary in sagebrush/scrub habitat with minimal tall vegetation, a seasonal pool, and adjacent cliff faces outside the site boundary but within the analysis area along Finnegan Creek. The tall vegetation and seasonal pool are indicative of higher moisture, which likely supports a higher concentration of insect prey in the area and Yuma myotis, the most abundant species recorded during the bat acoustic surveys, forages primarily near or over streams and ponds. In addition, rocky outcroppings and cliff faces were present on hillsides within the analysis area in the vicinity of this station, which are preferred roosting and foraging locations for the western small-footed myotis, the second most abundant species recorded during the surveys. These results suggest that activity is concentrated in areas with features suitable for roosting and foraging Myotis species (i.e., trees, water sources, rocky outcroppings).

Based on the Applicant's avoidance of typical maternal and roosting habitat (i.e., caves and cliffs) and minimization of impacts to foraging habitat (i.e., wetlands and waters) for the state sensitive species with potential to occur at the Facility, the limited amount of trees and forested habitat

within the site boundary, construction and operation of the Facility are anticipated to have low to moderate impacts on bats, including state sensitive bat species, commensurate with fatality rates observed at other projects in the region. The Applicant will monitor for bat fatalities during Facility operation as described in the Draft Wildlife Monitoring and Mitigation Plan (WMMP; Attachment G-3).

8.2.1.2 White-tailed Jackrabbit

White-tailed jackrabbits are not a state sensitive species; however, they are considered a state SGCN (ODFW 2026a). Populations of this species are declining in Oregon and potential adverse impacts to this species from the Facility have been identified as a concern in response to consultation with ODFW. Throughout its range, research indicates loss of grassland habitat has significantly contributed to population declines of the white-tailed jackrabbit (Brown et al. 2018; Brown et al. 2020, Lim 1987, ODFW 2026a, Simes et al. 2015). Even partial changes in grassland ecosystems may negatively impact white-tailed jackrabbits by changing nutritional availability and removing shelter from predators. Reduced availability of nutritious vegetation can negatively impact reproductive performance (Brown et al. 2020). During spring, summer, and fall months white-tailed jackrabbits primarily feed on grasses and forbs, while shrubs become an important food source in winter months (Simes et al. 2015). Potential adverse impacts include displacement from foraging in temporary impact areas due to vegetation removal, alteration of vegetation communities, and disturbance by construction activities in the winter when white-tailed jackrabbits are nutritionally stressed. To minimize disturbance to white-tailed jackrabbits, the Applicant will fence the solar array areas with wildlife-friendly fencing, as discussed in Section 9.0. In addition, the potential for vehicle collisions during all phases of construction and operation of the Facility are also addressed in Section 9.0, though this impact is less likely due to the crepuscular and nocturnal habits of this species.

8.2.2 Birds

Ten state sensitive bird species and two protected eagle species have the potential to occur within the analysis area (Table G-5). Construction and operation of the Facility will result in temporary and permanent impacts to habitat for these species, which could displace nesting and foraging birds and habitat fragmentation may reduce the functionality of the area for birds. Birds using habitat within the footprint of Facility components are expected to relocate to other comparable habitat in the analysis area and the greater vicinity of the Facility. However, breeding success could be affected by this displacement, and foraging opportunities may be reduced during construction. Habitat mitigation as described in the Draft HMP (see Attachment G-2) will provide compensatory mitigation for impacts to habitat for birds. Temporary impacts from noise and visual disturbance associated with the presence of personnel, vehicles, and equipment during construction could also disrupt normal feeding or breeding activities or cause birds to avoid the area. Implementation of measures described in Section 9.0, such as conducting vegetation clearing and removal activities within suitable nesting bird habitat prior to or after the critical period for ground nesting birds to

the extent feasible, will avoid and minimize these effects. Operations will have reduced levels of human activity compared to construction but could still cause birds to alter their typical behavior and/or avoid the area. The risk of collision with vehicles will be minimized by the implementation of avoidance and minimization measures, such as speed limits on Facility roads (see Section 9.0). Several studies have shown that birds can be attracted to artificial lighting on human infrastructure, such as communication towers, guy wires, and wind turbines, which can also result in collision (Gehring et al. 2009; Kerlinger et al. 2010; Poot et al. 2008). The potential for collision risk due to artificial night lights will be avoided and minimized by using lights that are shielded and hooded, have the lowest allowable intensity, and are on timers or motion sensors. These designs will be implemented as discussed in Section 9.0. Collisions with power lines are unlikely because the majority of collection lines associated with the Facility will be buried, and the aboveground collector lines will be constructed following the Avian Power Line Interaction Committee (APLIC) recommendations for collision avoidance (APLIC 2012).

8.2.2.1 Raptor Nest Disturbance

Aerial raptor nest surveys conducted in 2023, 2025, and 2026 identified active nests belonging to nine species, including two state sensitive and two eagle species. This included one active and one alternate golden eagle nest, one bald eagle nest, eight Swainson's hawk nests, and one ferruginous hawk nest (confidential Figure G-6; Attachment G-1). As shown on confidential Figure G-6, six of these nests are located within the analysis area. Construction activities occurring near nests during the sensitive breeding season have the potential to disturb breeding raptors. To address this, the protective buffers and survey requirements identified in Table G-8 will be implemented for raptor nests that are determined to be active during construction; if the buffers can't be adhered to, the Applicant will coordinate with ODFW to identify alternatives (e.g., proceeding with construction with a biological monitor to ensure the nest is not being disturbed). The Applicant will also monitor for bird fatalities during Facility operation as described in the Draft WMMP (Attachment G-3).

8.2.2.2 Avian-Wind Turbine Collision Risk

Avian mortality at the Facility due to collision with turbines is anticipated and collision with operational turbines is likely the primary Facility-related threat to bird species. REWI reviewed existing public and private data on avian mortality at operational wind facilities nationwide and determined small passerines constitute the largest percentage of fatalities, followed by doves/pigeons, diurnal raptors, and upland gamebirds (REWI 2025). These data included 331 studies from 254 wind projects and are used here to anticipate potential impacts from wind components of the Facility, also taking into consideration the Facility's regional location, habitat, and the results of pre-construction surveys. In the 49 available studies reviewed in the Northern Rockies avifaunal biome (derived from Bird Conservation Regions; includes the Facility location), small passerines accounted for 63 percent of fatalities, followed by upland game birds at 9 percent of fatalities, doves/pigeons at 7 percent, and diurnal raptors at 5 percent of fatalities (REWI 2025). Waterfowl accounted for 3 percent of fatalities and owls accounted for 2 percent of fatalities in the

Northern Rockies, and the remaining bird groups (excluding unidentified birds) accounted for approximately 1 percent of fatalities or less. Additionally, Jansen (2023) assessed data from 55 post-construction fatality monitoring studies conducted between 1999 and 2020 in the CPE where the Facility is located. A total of 3,073 bird fatalities were documented at 42 wind energy facilities in the CPE during 55 studies. Passerines composed the majority of all fatalities (61 percent), followed by upland game birds (11 percent), unidentified birds (9 percent), and diurnal raptors (8 percent) (Jansen 2023). Collectively, owls and vultures composed less than 2 percent of all fatalities. The remaining 11 percent of species included the doves/pigeons group and other species' groups that had comparatively fewer fatalities. Species commonly associated with aquatic habitats (gulls/terns, loons/grebes, rails/coots, shorebirds, waterbirds, waterfowl) comprised approximately 2 percent of the total fatalities. As described in REWI (2025), the most common species reported as fatalities nationwide include horned lark (13 percent of fatalities), followed by mourning dove (5 percent) and red-eyed vireo (*Vireo olivaceus*; 4 percent), and western meadowlark (3 percent). According to Jansen (2023), the most common species reported as fatalities within the CPE were the horned lark (30 percent of fatalities), followed by unidentified bird (6 percent), gray partridge (*Perdix perdix*; 5 percent), and golden-crowned kinglet (*Regulus satrapa*; 4 percent).

Mean fatalities/megawatt (MW)/year estimated in Jansen (2023) was estimated at 2.69 birds/MW/year for all birds, which included 2.57 birds/MW/year for all birds (excluding raptors) and 0.12 birds/MW/year for raptors, which was similar to the mean fatality rate for all birds nationwide which was 2.6 birds/MW/year (REWI 2025). REWI (2025) found that the timing of passerine fatalities nationally and all-bird fatalities in most biomes exhibited two distinct seasonal peaks associated with spring and fall migration. However, no seasonal pattern was apparent for raptors nationally or for all birds in the Northern Rockies and Pacific biomes. Jansen (2023) did not evaluate temporal patterns in bird fatalities.

Similar species and species groups fatality trends are anticipated at the Facility. Passerines had the highest mean use across all seasons during avian use surveys at the Facility (Attachment G-1). Passerine species commonly observed included red-winged blackbird, horned lark, and European starling, all of which have been observed as fatalities at wind projects (REWI 2025). Based on their known use of the site boundary and documented fatalities at other wind projects, it is expected that passerines, in particular horned larks, will make up the largest proportion of fatalities. Overall bird use was, in general, distributed within the site boundary, although point-count location 13 located in the southwestern portion of the site boundary had the highest mean use by non-raptors. Bird use was the highest in fall, followed by winter, summer, and spring. While overall mean use for all bird species was the highest in the fall, seasonal mean use by raptors peaked during the summer season, primarily driven by turkey vultures. Based on these observations, it is anticipated that bird fatalities may be highest during spring and fall migration seasons as observed at other projects (REWI 2025), and, with the potential exception of the southwest portion of the site boundary, fatalities are not anticipated to be concentrated in particular portions of the site boundary or at particular turbines.

Fourteen raptor species were documented during avian and eagle use surveys conducted in 2025-2026 (Attachment G-1). Raptor mean use at the Facility was primarily by red-tailed hawk, northern harrier, American kestrel, and turkey vulture (see Section 7.1.4). State sensitive raptor and eagle species observed during avian and eagle use surveys included Swainson's hawk, golden eagle, and bald eagle. All of these species have been observed as fatalities at wind projects and therefore there is potential for them to occur as fatalities at the Facility (REWI 2025).

8.2.2.3 Avian-Solar Panel Collision Risk

Avian mortality at the Facility due to collision with other infrastructure such as solar panels is also possible. While avian fatality data for wind turbines is more available, there have been limited standard fatality data associated with PV solar energy infrastructure collected and available across the country. The limited utility-scale solar energy avian mortality data available suggest mortality at PV facilities is low, compared to collisions occurring with other anthropogenic infrastructure (e.g., wind turbines, communication towers, tall buildings). In a study by Kosciuch et al. (2020) that analyzed fatality monitoring data from 10 PV solar facilities in California and Nevada, a fatality estimate of 2.5 birds/MW/year was calculated, but this was reduced to an average annual fatality rate of 1.8 birds per MW per year when an outlier project was removed. In the Kosciuch et al. (2020) study, when suspected cause of death was determinable, collision with a panel or other solar infrastructure composed the highest percentage of carcasses with a known cause of death for all taxonomic orders. However, a cause of mortality could not be determined for approximately 61 percent of intact carcasses, and approximately 54 percent of all carcasses were feather spots, introducing uncertainty into the interpretation of the fatality estimates (Kosciuch et al. 2020). Most detections occurred in fall, similar to patterns observed at other anthropogenic features (e.g., buildings) including wind projects as described above.

Kosciuch et al. (2020) defined water-obligate bird species, which rely on water for take-off and landing, as a species group of interest for their analysis. It was suggested by other authors that waterbirds confuse the reflective array of solar panels located near ground level to be a body of water and attempt to land on them (Kosciuch et al. 2021). Kosciuch et al. (2020) stated that the causal mechanism responsible for water obligate mortalities at PV facilities could not be concluded with their study, and their results were not predictive outside of the vicinity of the sites included in their study. In a solar study that included six small solar arrays located next to Lake Michigan, no water obligate mortalities were recorded and only two water associate mortalities showed evidence of death caused by colliding with solar panels (Rodriguez et al. 2023). In addition, an analysis that summarized bird fatalities to date at PV solar facilities in Alberta, Canada, found no evidence for water associate and water obligate mortalities being present at higher numbers than other avian species (Kosciuch et al. 2022). Panel technology could be an overlooked factor that influenced bird mortality patterns, and Kosciuch et al. (2025) demonstrated that the facility with the water-obligate fatality data was built in 2012, had fixed-axis panels, and was developed prior to the transition to anti-reflective coating. No water-obligate or water-associated species are considered sensitive in the Columbia Plateau Ecoregion (ODFW 2021).

In Oregon, results of a fatality study at a 56-MW PV solar facility near Prineville detected only three bird fatalities during one year of standardized searches, including only two native birds: horned lark and a dark-eyed junco (*Junco hyemalis*) (ODOE 2020). These findings, which are the first for the region in Oregon, imply that significant fatality events are unlikely at PV solar facilities in the area. However, it is possible that low numbers of carcasses of ground-dwelling birds could occur, but the cause of fatality will be difficult to attribute to facility interactions. The limited avian mortality and usage data for utility scale solar energy sites suggests that mortality at PV facilities in particular is low. As a result, impacts to sensitive bird species with the potential to occur within the site boundary are addressed below in terms of potential impacts primarily related to habitat removal, disturbance, and collision with turbine blades and vehicles.

8.2.2.4 Species Specific Analysis

Potential impacts to sensitive bird species with the potential to occur within the Facility are addressed below. Measures described in Section 9.0 will be used to minimize or avoid these potential impacts.

- **Bald eagle (no state status, BGEPA-protected):** Bald eagles were observed within the analysis area during 2025-2026 eagle and avian use surveys as well as the 2025 and 2026 raptor nest surveys and 2024-2026 special status wildlife surveys (Table G-5; Attachment G-1). One active bald eagle nest was observed within the site boundary during raptor nest surveys conducted in 2026 (confidential Figure G-6.4), and three bald eagles were incidentally observed within the analysis area during the 2025 raptor nest surveys. Twenty-two bald eagles were observed within the site boundary during eagle use surveys conducted in 2025-2026. In addition, seven bald eagles were incidentally observed within the analysis area during these surveys. Bald eagles primarily hunt in or near aquatic habitats (such as the nearby Deschutes River) but opportunistically forage on carrion particularly in winter (Buehler 2000). Based on the number of observations, the likelihood that bald eagles will occur within the site boundary is high and the potential for collision risk exists year-round. Potential adverse impacts to this species due to the construction and operation of the Facility include potential nesting disturbance and collision risks with turbine blades, vehicles, or other infrastructure.

Turbine collision is the primary potential adverse impacts to bald eagles, with impacts likely to occur mainly during migration and winter. However, fatality rates reported for bald eagles at wind projects nationwide have been low. Two bald eagle fatalities were documented nationwide between 2002 and 2023 (i.e., less than 0.1 percent of fatality incidents based on 331 studies; REWI 2025); however, it is important to note that data submission to the American Wind Wildlife Information Center database, upon which REWI (2025) is based, is voluntary and may not present a complete picture for this species. Within the CPE, Jansen (2023) reported one bald eagle fatality during post-construction fatality monitoring at wind energy facilities from 1999–2020 (i.e., 0.03 percent of 3,073 bird

fatalities). Other potential adverse impacts from collision risks exist with vehicles, heavy equipment, solar arrays, perimeter fencing, and other Facility components.

- **Brewer's sparrow (state sensitive):** Two Brewer's sparrows were documented in the analysis area during surveys for the Facility. One was documented singing in Eastside Grasslands in the south-central portion of the site boundary during special status wildlife surveys in the late spring of 2025, and the other was observed in summer 2025 during avian use surveys (Attachment G-1). Brewer's sparrows are typically found in shrublands dominated by big sagebrush (ODFW 2026a), which occurs in scattered locations within the analysis area (Figure G-4). Brewer's sparrows arrive in Oregon in April and breed by the end of the month; following the breeding season, adults and young often congregate into large wandering flocks (Csuti et al. 2001).

Potential adverse impacts to this species due to the construction and operation of the Facility include habitat loss, potential nesting disturbance, and collision risks with turbine blades, vehicles, solar arrays, or other infrastructure. Brewer's sparrow is also a nocturnal migrant; therefore, this species may be attracted to artificial lights produced by Facility components during migration, causing additional collision risks. Twenty-five Brewer's sparrow fatality incidents have been documented at wind projects nationwide (i.e., 0.3 percent of fatality incidents based on 331 studies; REWI 2025), and this species represented 0.46 percent of bird fatalities in the CPE (i.e., 14 Brewer's sparrow fatalities out of 3,073 bird fatalities) as analyzed by Jansen (2023).

- **Burrowing owl (state sensitive-critical):** No burrowing owls were recorded during surveys conducted for the Facility (Table G-5; Attachment G-1). The species inhabits wide-open, sparsely vegetated areas and could occur in grassland, shrubland, agricultural, and developed habitats within the site boundary, especially if burrowing mammals are present. Potential adverse impacts from the construction and operation of the Facility include the loss of foraging and breeding habitat, potential collapse of burrows and nesting disturbance, and potential collision risks with vehicles, perimeter fencing, or other infrastructure. This species is a nocturnal migrant and may be attracted to artificial lights produced by the Facility during migration, increasing collision risks. Burrowing owls are not generally susceptible to collision with turbines; burrowing owls have only been documented in only seven fatality incidents at wind projects nationwide (i.e., 0.1 percent of fatality incidents based on 331 studies; REWI 2025) and one fatality has been documented at wind projects in the CPE (i.e., 0.03 percent of fatality incidents based on 3,073 bird fatalities; Jansen 2023).
- **Common nighthawk (state sensitive):** One common nighthawk was recorded within Eastside Grasslands habitat in the southwestern portion of the site boundary during the 2024-2026 special status wildlife surveys (Table G-5; Attachment G-1). An additional common nighthawk was observed adjacent to but outside the analysis area during these surveys. A long-distance migrant, this species is only present in Oregon during its breeding season, arriving in mid- to late May and common nighthawks are rarely observed in

Sherman County after August (Brigham et al. 2011, Sullivan et al. 2009). Common nighthawk is most commonly found in open or semi-open terrain. The species tends to roost and nest on gravel or sparsely vegetated grasslands (Brigham et al. 2020). It is an aerial insectivore that feeds in low-light conditions at dusk and dawn, often near water, but also on insects attracted to artificial lights (Brigham et al. 2020).

Construction and operation of the Facility could pose a risk to these birds, which nest on a variety of substrates in open areas including bare ground, gravel, and lithosol. Males also tend to roost on gravel roads and therefore may roost in temporary impact areas in use during construction such as staging areas. During construction and operation, nesting disturbance and collision with vehicles, turbine blades, solar arrays, perimeter fencing, and other Facility components may adversely affect this species. Thirty-eight common nighthawk fatality incidents have been documented at wind projects nationwide (i.e., 0.4 percent of fatality incidents based on 331 studies; REWI 2025) and 18 fatalities have been documented at wind projects in the CPE (i.e., 0.59 percent of fatality incidents based on 3,073 bird fatalities; Jansen 2023).

- **Ferruginous hawk (state sensitive-critical):** One active ferruginous hawk nest was recorded within the analysis area during 2026 raptor nest surveys conducted for the Facility (Table G-5; Attachment G-1). This species occurs in open, grassy areas and shrub-steppe with scattered shrubs or trees for perching and nesting. They can nest in juniper or cottonwood trees near small streams, on rocky sites with an expansive view, on rimrock, or on undisturbed ground (ODFW 2026a). Ferruginous hawks can be present on breeding territories as early as late February to early March and can be found in Oregon in small numbers year-round (Ng et al. 2017; Sullivan et al. 2009).

During construction and operation, habitat loss, nesting disturbance, and collision with turbine blades may adversely impact this species. Ferruginous hawks have been documented in 16 fatality incidents at wind projects nationwide (i.e., 0.2 percent of fatality incidents based on 331 studies; REWI 2025) and eight fatalities have been documented at wind projects in the CPE (i.e., 0.26 percent of fatality incidents based on 3,073 bird fatalities; Jansen 2023).

- **Golden eagle (BGEPA):** Golden eagles were observed within the analysis area during eagle use surveys for the Facility as well as during the 2025 raptor nest surveys (Attachment G-1). Four golden eagles were incidentally observed during the 2025 raptor nest surveys and seven observations of golden eagles were observed within survey plots during 2025-2026 eagle use surveys: two within the spring, two within the summer, two within the fall, and one within the winter season. An additional four golden eagles were incidentally observed during the 2025-2026 eagle use surveys. One active and one alternate golden eagle nest were observed approximately 2.2 and 2.3 miles, respectively, west of the analysis area during the 2025 raptor nest surveys. The golden eagle is the largest soaring raptor inhabiting open country and mountainous terrain in eastern Oregon and is a year-round

resident of Oregon in all counties east of the Cascade Range (ODFW 2026b). The golden eagle inhabits shrub-steppe, grassland, juniper, and open ponderosa pine and mixed conifer/deciduous habitats. It forages in a variety of habitat types, preferring areas with an open shrub component that provides food and cover for prey.

Turbine collision is the primary potential adverse impacts to golden eagles from the Facility. However, fatality rates reported for golden eagles at wind projects nationwide have been relatively low. Twenty-four golden eagle fatalities have been documented at wind projects nationwide between 2002 and 2023 (i.e., 0.2 percent of fatality incidents based on 331 studies; REWI 2025); however, it is important to note that data submission to the American Wind Wildlife Information Center database, upon which REWI (2025) is based, is voluntary and may not present a complete picture for this species. Within the CPE, Jansen (2023) reported four golden eagle fatalities during post-construction fatality monitoring at wind energy facilities from 1999–2020 (i.e., 0.1 percent of 3,073 bird fatalities). The closest turbines are more than 2 miles away from the active and alternate golden eagle nests observed during the 2025 raptor nest surveys, and no other golden eagle nests were observed during the 2023 or 2026 raptor nest surveys.

- **Grasshopper sparrow (state sensitive):** Grasshopper sparrows were observed during both special status wildlife surveys and avian use surveys (Table G-5, Attachment G-1). This species uses dry grassland habitat, generally with low to moderate grass height and low percent shrub cover (ODFW 2026a) and is locally and regionally abundant. In Oregon, this species breeds primarily in native bunchgrass. Its breeding period generally begins in May (Vickery 1996). Observations at the Facility were limited to the spring and summer seasons. No detections occurred during fall or winter seasons, as this species migrates south relatively early and those that may remain cease singing.

Construction and operation of the Facility will result in the loss of suitable breeding and foraging habitat for grasshopper sparrow. However, this species is able to use a variety of habitat types and as a result, grasshopper sparrows displaced by construction and operation of the Facility are expected to relocate to other comparable habitat in the vicinity. Other potential impacts include disturbance during breeding and collision with turbine blades, vehicles, solar arrays, or other infrastructure. Grasshopper sparrows have been documented in 36 fatality incidents at wind projects nationwide (i.e., 0.4 percent of fatality incidents based on 331 studies; REWI 2025) and one documented fatality at wind projects in the CPE (i.e., 0.1 percent of 3,073 bird fatalities; Jansen 2023). Grasshopper sparrow is a nocturnal migrant (Hill and Renfrew 2018); therefore, this species may be attracted to artificial lights produced by Facility components during migration, causing additional collision risks.

- **Lewis's woodpecker (sensitive-critical):** Lewis's woodpeckers were not observed during surveys for the Facility. This woodpecker is associated with open forests, often at lower elevations, and nest in woodlands of the river valleys of eastern Oregon (Csuti et al. 2001). Limited suitable riparian habitat for this species occurs in the analysis area. Lewis's

woodpecker has the potential to pass through the Facility as a vagrant during migration. Lewis's woodpecker has not been documented as fatalities at wind projects nationwide (REWI 2025) or in the CPE (Jansen 2023).

- **Loggerhead shrike (state sensitive):** Three loggerhead shrikes were recorded during the 2024-2026 special status wildlife surveys and four shrikes were detected during the 2025-2026 avian use surveys (Table G-5; Attachment G-1). During the special status wildlife surveys, the shrikes were observed near riparian zones bordered by Rabbitbrush /Snakeweed Shrubland and Eastside Grasslands in the central portion of the site boundary (Figure G-5). This species uses tall sagebrush for nesting and roosting, and forages in open areas with grasses and bare ground (ODFW 2026a).

Potential adverse impacts to this species include habitat loss, potential nesting disturbance, and collision with turbine blades, vehicles, solar arrays, perimeter fencing and other infrastructure. This species is a nocturnal migrant and may be attracted to artificial lights produced by Facility components during migration, causing additional collision risks. Loggerhead shrikes have been documented in only 18 fatality incidents at wind projects nationwide (i.e., 0.2 percent of fatality incidents based on 331 studies; REWI 2025) and, per Jansen (2023), no fatalities of loggerhead shrike were documented at wind projects in the CPE.

- **Long-billed curlew (state sensitive-critical):** No long-billed curlews were recorded during surveys conducted for the Facility (Table G-5; Attachment G-1). This grassland-associated species prefers shorter grass, and, in the Columbia Plateau, forages both within and away from their nesting territories, often in recently cut alfalfa and other croplands (ODFW 2026a). Long-billed curlews arrive in Oregon near the end of March (Csuti et al. 2001).

Potential adverse impacts from construction and operation of the Facility include loss of potential nesting and foraging habitat as well as potential collision with the turbine blades, solar arrays, and other infrastructure, as well as vehicles during the spring and summer months. Long-billed curlews are nocturnal migrants and may be attracted to artificial lights produced by Facility components during migration, creating additional collision risks. Long-billed curlew is susceptible to human disturbance during the breeding season, which can result in nest abandonment or disruption of brood-rearing (Dugger and Dugger 2020). Long-billed curlew has been documented in only 11 fatality incidents at wind projects nationwide (i.e., 0.1 percent of fatality incidents based on 331 studies; REWI 2025) and nine documented fatalities at wind projects in the CPE (i.e., 0.3 percent of 3,073 bird fatalities; Jansen 2023).

- **Sagebrush sparrow (state sensitive-critical):** No sagebrush sparrow individuals were recorded within the analysis area during surveys conducted for the Facility (Table G-5; Attachment G-1). This often difficult-to-detect species is found in shrub-steppe habitat with high shrub cover and is closely associated with sagebrush communities (ODFW 2026a).

Sagebrush sparrows can establish territories as early as late February and can still be found migrating in Oregon in early November.

Potential adverse impacts to this species due to the construction and operation of the Project include habitat loss, potential nesting disturbance, and collision with turbine blades, vehicles, solar arrays, perimeter fencing and other infrastructure. Sagebrush sparrow has been documented in only two fatality incidents at wind projects nationwide (i.e., less than 0.1 percent of fatality incidents based on 331 studies; REWI 2025) and one documented fatality at wind projects in the CPE (i.e., 0.03 percent of 3,073 bird fatalities; Jansen 2023).

- **Swainson's hawk (state sensitive):** Several active Swainson's hawk nests have been observed within the analysis area during raptor nest surveys conducted for the Facility, including two during the 2023 surveys, one during the 2025 surveys, and one during the 2026 raptor nest surveys (Table G-5; Attachment G-1). In addition, this species was recorded within the site boundary during the 2024-2026 special status wildlife surveys and 2025-2026 eagle and avian use surveys. Swainson's hawk is an open-country specialist that forages extensively while in flight. Swainson's hawk is more likely to hunt in agricultural areas, such as hay and alfalfa fields, pastures, and grain crops than most other raptor species (Bechard et al. 2020).

Potential adverse impacts to this species due to the construction and operation of the Facility include loss of foraging habitat, potential nesting disturbance, and collision with turbine blades, vehicles, solar arrays, perimeter fencing and other infrastructure. Swainson's hawk has been documented in 65 fatality incidents at wind projects nationwide (i.e., less than 0.1 percent of fatality incidents based on 331 studies; REWI 2025) and 33 documented fatalities at wind projects in the CPE (i.e., 1.07 percent of 3,073 bird fatalities; Jansen 2023). To minimize disturbance to nesting Swainson's hawks, the Applicant will not conduct ground-disturbing activities within 0.25 miles of active Swainson's hawk nests during the nesting season, as feasible, and as described in Section 9.

8.2.3 Reptiles

Two state sensitive reptile species have the potential to occur within the analysis area: northern sagebrush lizard and California mountain kingsnake (Table G-5). Neither species was observed during surveys. Targeted surveys for reptiles were not conducted, but pedestrian wildlife surveys occurred after the hibernation periods for each species and were conducted during the day, when diurnally active reptiles have the potential to be observed in the appropriate habitat.

- **Northern sagebrush lizard (state sensitive).** This species typically occurs in shrub-steppe habitat with sandy soils and sparse vegetation in the grass and forb layer, but northern sagebrush lizards are also found in chaparral, juniper woodlands and coniferous forests (ODFW 2026c). Northern sagebrush lizards were not observed during surveys, but are known to occur in Sherman County (ORBIC 2019). Potential adverse impacts to this species include loss of habitat and disturbance during construction if individuals are present.

- **California mountain kingsnake** (state sensitive). This species typically occurs in oak and pine woodlands, which are absent from the analysis area (Table G-4; ODFW 2026a, ODFW 2026d). No records of California mountain kingsnake were identified by an ORBIC query for the analysis area (ORBIC 2025b, ORBIC 2026) and this species is not known to occur in Sherman County (ORBIC 2019). As a result, no adverse impacts to California mountain kingsnake are anticipated as a result of Facility construction and operation.

8.2.4 Fish

One state sensitive fish species has the potential to occur within the analysis area: steelhead (Middle Columbia River Species Management Unit/ESU summer run). Habitat for steelhead occurs within the analysis area in Rosebush Creek and Grass Valley Canyon (ORBIC 2026, StreamNet 2026). Grass Valley Canyon lies outside the site boundary and will not be impacted by construction or operation of the Facility. In addition, the Facility will not result in any in-water work and no riparian areas associated with Rosebush Creek will be impacted. Therefore, no adverse impacts to steelhead are anticipated.

9.0 Avoidance and Mitigation Measures – OAR 345-022-0060(3)(g)

(g) A description of any measures proposed by the applicant to avoid, reduce, or mitigate the potential adverse impacts described in (f) in accordance with the general fish and wildlife habitat mitigation goals and standards described in OAR 635-415-0025 and a description of any measures proposed by the applicant to avoid, minimize, and provide compensatory mitigation for the potential adverse impacts described in (f) in accordance with the sage-grouse specific habitat mitigation requirements described in the Greater Sage-Grouse Conservation Strategy for Oregon at OAR 635-140-0000 through 635-140-0025, and a discussion of how the proposed measures would achieve those goals and requirements; and

This section describes measures to avoid, minimize, and mitigate for impacts to state sensitive and other wildlife species and their habitats, and describes how those measures are expected to achieve the habitat mitigation goals of OAR 635-415-0025. The analysis area is not within the range of the sage grouse (*Centrocercus urophasianus*); therefore, the application of the Greater Sage-Grouse Conservation Strategy is not required.

9.1 Facility Design

Measures employed during design of the Facility to avoid and minimize impacts to fish and wildlife habitat, as well as state sensitive species, have included the following:

- To the extent feasible, Facility components have been sited on previously disturbed habitat, including cropland and developed areas, thereby minimizing impacts to other habitats more suitable for sensitive and other wildlife species, such as wetlands, sagebrush steppe and

eastside grasslands. This siting effort is expected to minimize impacts to wildlife generally and to sensitive species in particular.

- The Facility has been designed to avoid ODFW-mapped Mule Deer Winter Range and PWCAs to the extent feasible.
- The Facility has been designed to avoid impacts to delineated wetlands and other waters of the state to the extent feasible.
- To allow for big game and other wildlife movement and to minimize lost habitat connectivity, subareas or smaller areas of solar panels will be individually fenced allowing for corridors and gaps in between solar arrays.
- Collector lines will be buried to the extent feasible.
- Aboveground collector lines will be designed and constructed in compliance with APLIC standards. This is expected to minimize the risk of electrocution to eagles and other raptors generally, and to ferruginous hawk and Swainson's hawk in particular.
- Outdoor night lighting at Facility components including substations, O&M buildings, and battery storage systems, will be the minimum number and intensity required for safety and security and will be shielded and hooded in a manner that prevents the lighting from projecting onto adjacent properties, roadways, and waterways. This is expected to minimize the risk of bird and bat collision with Facility buildings for all birds and bats in general, with a particular focus on nocturnal migrant species such as Brewer's sparrow and the grasshopper sparrow and on crepuscular species such as the common nighthawk.
- The Applicant will cap or otherwise modify vertical pipes and piles to prevent cavity-dwelling and nesting birds from entering. This also prevents any perching bird from inadvertently falling into pipes. These caps are expected to minimize the risk of fatalities to all birds, as well as small mammals and lizards such as the northern sagebrush lizard.

9.2 Construction

During construction of the Facility, proposed measures to avoid and minimize impacts to fish and wildlife habitat, as well as state sensitive species, include the following:

- The Applicant will employ a construction monitor(s) familiar with sensitive biological resources (e.g., active raptor nests, wetlands) to ensure appropriate measures are implemented to avoid disturbance to these resources. The construction monitors will be responsible for placing flagging/temporary fencing around areas where no construction activities should occur (e.g., wetlands).
- The Applicant will conduct preconstruction raptor nest surveys within 2 miles of wind turbine locations to inform seasonal restrictions of construction activities within the buffer areas noted in Table G-8.
- The Applicant will not conduct ground-disturbing activities within the buffer distances of active raptor nests as identified in the spring prior to construction, as feasible and as recommended by ODFW in their comments on the Facility Notice of Intent and shown in Table G-8. If the Applicant cannot adhere to these restrictions, the Applicant will coordinate

with ODFW to identify alternatives (e.g., proceeding with construction with a biological monitor to ensure the nest is not being disturbed).

Table G-8. ODFW Raptor Nest Buffers and Seasonal Restrictions

Species	Spatial Buffer	Seasonal Restriction	Release Date if Unoccupied
Western burrowing owl	0.25 mile	April 1 to Aug 15	May 31
Golden eagle	0.5 mile	Feb 1- Aug 15	May 15
Red-tailed hawk	300-500 feet	Mar 1- Aug 15	May 31
Ferruginous hawk	0.25 mile	Mar 15- Aug 15	May 31
Swainson's hawk	0.25 mile	April 1- Aug 15	May 31
Prairie falcon	0.25 mile	Mar 15- Jul 1	May 15
Peregrine falcon	0.25 mile	Jan 1- Jul 1	May 15
American kestrel	0.25 mile	Mar 1- Jul 31	May 15

- To the extent feasible, the Applicant will conduct vegetation clearing and removal activities within suitable nesting bird habitat (e.g., excluding Category 6 habitat) prior to or after the critical period for ground nesting birds, April 15- September 1. If vegetation clearing activities are necessary between April 15 to September 1, the Applicant shall hire a qualified biologist to conduct a clearance survey for nesting birds prior to vegetation removal. The Applicant shall ensure that active nest sites identified during the clearance survey are flagged and marked as sensitive areas to be avoided on construction maps.
- Because construction will not occur outside the microsite area, there will not be any construction activities outside of the microsite area December 1 – April 1 within Mule Deer Winter Range, which will limit disturbance to deer during winter.
- The Applicant will establish driving speed limits on Facility access roads during construction to minimize the potential for vehicle collisions with wildlife or livestock, which could attract foraging eagles and other wildlife, and to reduce the potential for wildlife-vehicle collisions.
- Per ODFW request, reasonable efforts will be made to maintain native vegetation within Facility boundaries given the challenges revegetation has presented in similar development scenarios in the region. Temporarily disturbed areas will be revegetated following construction as described in the Draft Vegetation and Soil Management Plan (Exhibit C – Soil Protection, Attachment C-2).

9.3 Operation

During operation of the Facility, proposed measures to avoid and minimize impacts to fish and wildlife habitat, as well as state sensitive species, include the following:

- The Applicant will perform post-construction fatality monitoring and adaptively manage as needed to further reduce and mitigate impacts as described in the Draft WMMP (Attachment G-3).
- Operations and maintenance vehicles will be limited to 20 miles per hour on all Facility access roads (excluding public roads). This is expected to limit impacts specifically to burrowing owls, common nighthawks, long-billed curlews, white-tailed jackrabbits, and big game, and to wildlife in general.
- The Applicant will manage low-height native vegetation inside the fenced area containing the solar array and battery energy storage system and will implement measures to control and prevent the spread of noxious weeds as described in the Draft Vegetation and Soil Management Plan (Exhibit C, Attachment C-2).
- The Applicant will use utilize wildlife-friendly perimeter fencing consisting of a 7-foot woven wire fence with wooden poles and 4 or 6-inch square openings.

9.4 Environmental Training and Sensitive Resource Awareness

The Applicant will provide environmental training to construction and operation staff to avoid impacts to sensitive species and their habitat, and to review exclusion areas/seasonal avoidance buffers and other environmental issues. Training includes reporting injured or dead wildlife discovered incidental to construction and maintenance operations in accordance with the procedures described in the Draft WMMP (Attachment G-3).

9.5 Mitigation

After avoidance and minimization measures have been implemented, remaining impacts to wildlife habitat and sensitive species in the form of temporary and permanent habitat loss will be mitigated for according to ODFW Habitat Mitigation Policy goals and standards, as described in the Draft HMP (Attachment G-2). Included in this plan are measures for protecting and enhancing sufficient acreages of wildlife habitat to meet the mitigation goals and standards for those habitat subtypes and categories temporarily and permanently impacted by the Facility. The mitigation will be in place for the duration of the Facility.

10.0 Monitoring Program – OAR 345-022-0060(3)(h)

(h) A description of the applicant's proposed monitoring plans to evaluate the success of the measures described in (g).

The Applicant will conduct wildlife monitoring as described in the Draft WMMP (Attachment G-3) and monitoring related to mitigation success is described in the Draft Habitat Mitigation Plan (Attachment G-2). As described in the Draft Vegetation and Soil Management Plan (Attachment C-2), restoration efforts will be monitored during operation to assess whether the Facility is meeting revegetation success criteria, including control of noxious weeds.

11.0 Conclusion

As part of the Facility siting process, the fish and wildlife habitats within the analysis area were identified and categorized pursuant to OAR 635-415-0025. Based on survey results, the Facility was adjusted to minimize impacts to avoid Category 2 habitat where possible (no Category 1 habitat was identified) and minimize impacts to field-mapped Category 3, 4, and 5 habitats. Unavoidable habitat impacts will be mitigated consistent with OAR 635-415-0025.

Therefore, based on the information provided in this exhibit, there is sufficient evidence upon which the Oregon Energy Facility Siting Council may find that the design, construction, and operation of the Facility, taking into account the proposed mitigation measures, are consistent with the fish and wildlife mitigation goals and standards of OAR 635-415-0025. Accordingly, the Applicant demonstrates compliance with OAR 345-022-0060.

12.0 References

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13.0 Approval Standards and Submittal Requirements

Table G-9. Approval Standards and Submittal Requirements Matrix

Requirements	Location
OAR 345-022-0060 Fish and Wildlife Habitat	–
Approval Standards	
To issue a site certificate, the Council must find that the design, construction and operation of the facility, taking into account mitigation, are consistent with:	
(1) The general fish and wildlife habitat mitigation goals and standards of OAR 635-415-0025(1) through (6) in effect as of September 1, 2025; and	
(2) For energy facilities that impact sage-grouse habitat, the sage-grouse specific habitat mitigation requirements of the Greater Sage-Grouse Conservation Strategy for Oregon at OAR 635-415-0025(7) and OAR 635-140-0000 through -0025 in effect as of September 1, 2025.	
Submittal Requirements	
(3) To assist the Council in determining whether the standard outlined in (1) through (2) has been met, the Applicant must submit information about the fish and wildlife habitat and the fish and wildlife species, other than the species addressed in OAR-022-0070(3) (the Threatened and Endangered Species Exhibit) that could be affected by the proposed facility, providing evidence to support a finding by the Council as required by this rule. The applicant must include:	–
(a) A description of biological and botanical surveys performed that support the information in this exhibit, including a discussion of the timing and scope of each survey;	Section 4.0
(b) Identification of all fish and wildlife habitat in the analysis area, classified by the general fish and wildlife habitat categories as set forth in OAR 635-415-0025 and the sage-grouse specific habitats described in the Greater Sage-Grouse Conservation Strategy for Oregon at OAR 635-140-0000 through 635-140-0025 (core, low density, and general habitats), and a description of the characteristics and condition of that habitat in the analysis area, including a table of the areas of permanent disturbance and temporary disturbance (in acres) in each habitat category and subtype;	Sections 5.0 and 8.1
(c) A map showing the locations of the habitat identified in (b);	Figures G-3 and G-4
(d) Based on consultation with the Oregon Department of Fish and Wildlife (ODFW) and appropriate field study and literature review, identification of all State Sensitive Species that might be present in the analysis area and a discussion of any site-specific issues of concern to ODFW;	Section 6.0
(e) A baseline survey of the use of habitat in the analysis area by species identified in (d) performed according to a protocol approved by the Department and ODFW;	Section 7.0

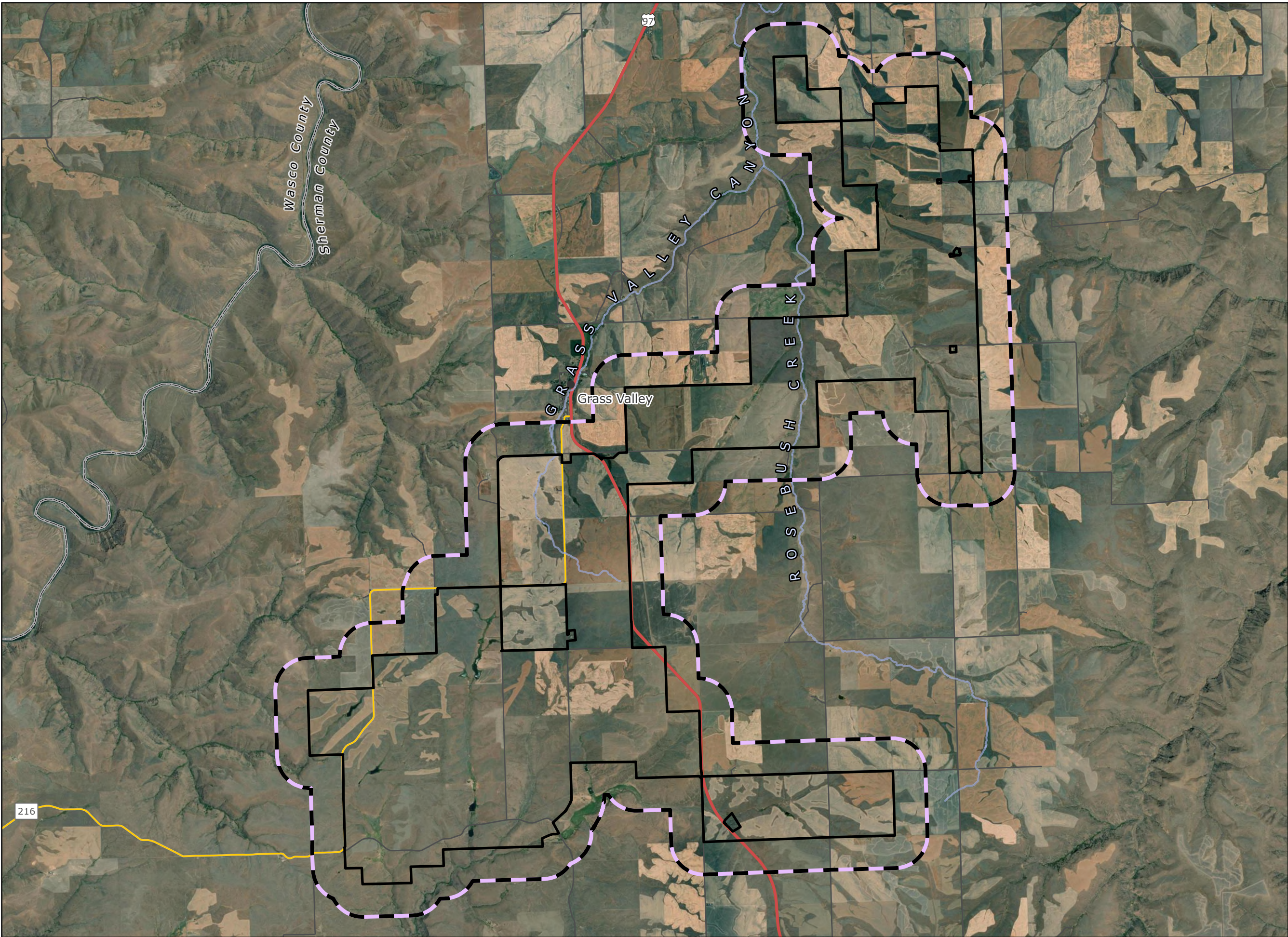
Preliminary Application for Site Certificate
Exhibit G. Fish and Wildlife Habitat

Requirements	Location
(f) A description of the nature, extent and duration of potential adverse impacts on the habitat identified in (b) and species identified in (d) that could result from construction, operation and retirement of the proposed facility;	Section 8.0
(g) A description of any measures proposed by the applicant to avoid, reduce, or mitigate the potential adverse impacts described in (f) in accordance with the general fish and wildlife habitat mitigation goals and standards described in OAR 635-415-0025 and a description of any measures proposed by the applicant to avoid, minimize, and provide compensatory mitigation for the potential adverse impacts described in (f) in accordance with the sage-grouse specific habitat mitigation requirements described in the Greater Sage-Grouse Conservation Strategy for Oregon at OAR 635-140-0000 through 635-140-0025, and a discussion of how the proposed measures would achieve those goals and requirements; and	Section 9.0
(h) A description of the applicant's proposed monitoring plans to evaluate the success of the measures described in (g).	Section 10.0
EFSC 4-2026, amend filed 04/23/2026, effective 04/23/2026	

Figures

Note that Figure G-6 is **Confidential** and provided under separate cover

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Speedway Energy Facility

**Figure G-1
Fish and Wildlife
Analysis Area**

SHERMAN COUNTY, OR

- Facility Site Boundary
- Analysis Area (0.5 mile buffer)
- City/Town
- County Boundary
- US Highway
- State Highway
- Local Roads
- Major Streams (NHD Flowline)

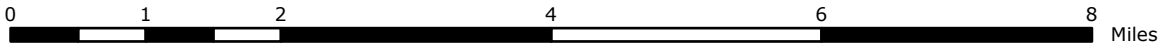


Reference Map



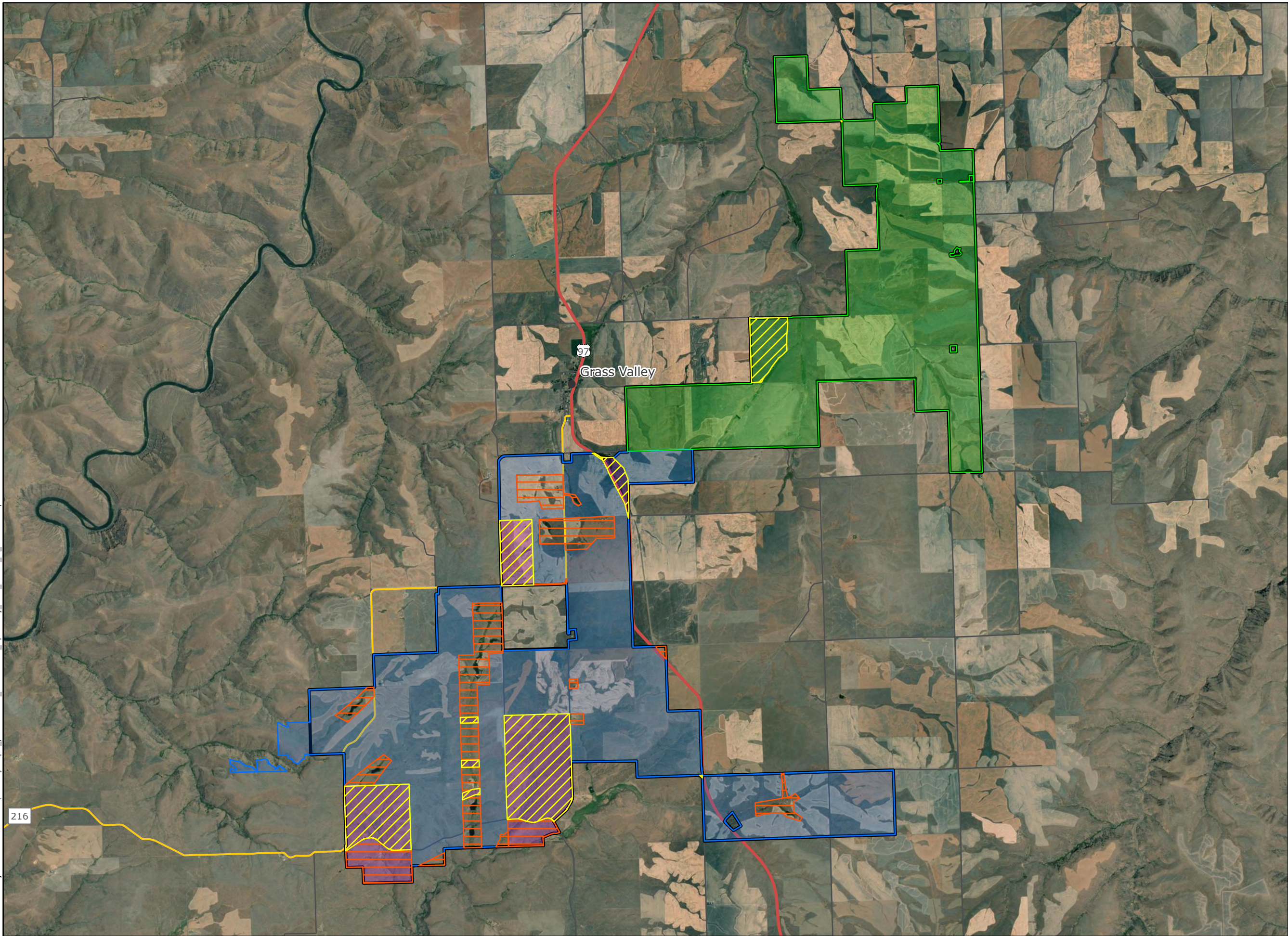
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WGS 1984 UTM Zone 10N



NOT FOR CONSTRUCTION

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Speedway Energy Facility

Figure G-2 2024-2026 Habitat, Special Status Wildlife, and Botanical Survey Areas

SHERMAN COUNTY, OR

Facility Site Boundary

City/Town

US Highway

State Highway

Local Roads

Biological Survey Areas

2026 Survey Area

2025 Survey Area

2024 Survey Area

Areas Not Surveyed

Surveyed for Botanical Resources in June 2026*

Area Will Not Be Developed

** Information from the 2026 Botanical Surveys will be incorporated into the Final Application for Site Certificate*

TETRA TECH

Speedway Energy

Reference Map



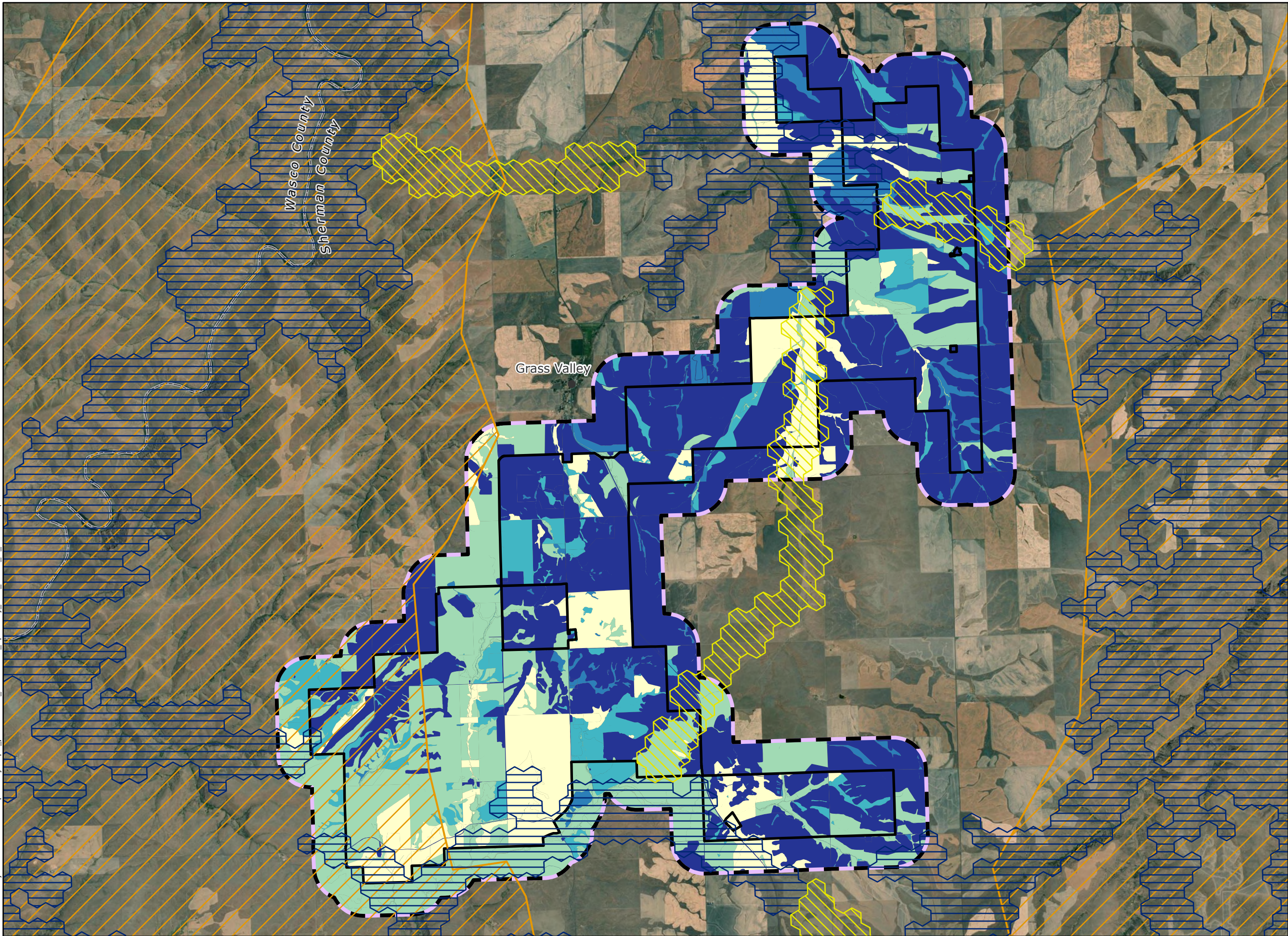
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WGS 1984 UTM Zone 10N

0 1 2 4 6 8 Miles

NOT FOR CONSTRUCTION

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Speedway Energy Facility

**Figure G-3
Habitat Categories
in the Analysis Area**

SHERMAN COUNTY, OR

- Facility Site Boundary
- Analysis Area (0.5 mile buffer)
- City/Town
- County Boundary
- Mule Deer Winter Range (ODFW 2013)
- Priority Wildlife Connectivity Areas (ODFW 2023)
 - Region
 - Connector
- Habitat Category*
 - 2
 - 3
 - 4
 - 5
 - 6

** Habitat category based on vegetative characteristics, not considering wildlife overlays such as Mule Deer Winter Range*



Reference Map



1:90,000

WGS 1984 UTM Zone 10N

0 1 2 4 6 8 Miles

NOT FOR CONSTRUCTION

Speedway Energy Facility

**Figure G-4
Habitat Subtypes
in the Analysis Area**

SHERMAN COUNTY, OR

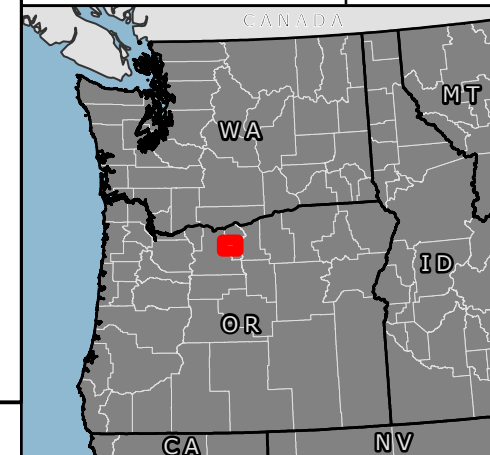
- Facility Site Boundary
- Analysis Area (0.5 mile buffer)
- City/Town
- County Boundary

Habitat Subtypes

- Eastside (Interior) Riparian-Emergent
- Eastside (Interior) Riparian-Forested or Natural Shrubland
- Eastside Grasslands
- Emergent Wetlands
- Forested Wetlands
- Intermittent or Ephemeral Streams
- Orchards, Vineyards, Wheat Fields, Other Row Crops
- Perennial Streams
- Permanent Ponds/Lakes
- Planted Grasslands
- Rabbitbrush/Snakeweed Shrubland
- Sagebrush Shrub-Steppe
- Scrub-shrub Wetlands
- Seasonal Ponds
- Urban and Mixed Environs



Reference Map



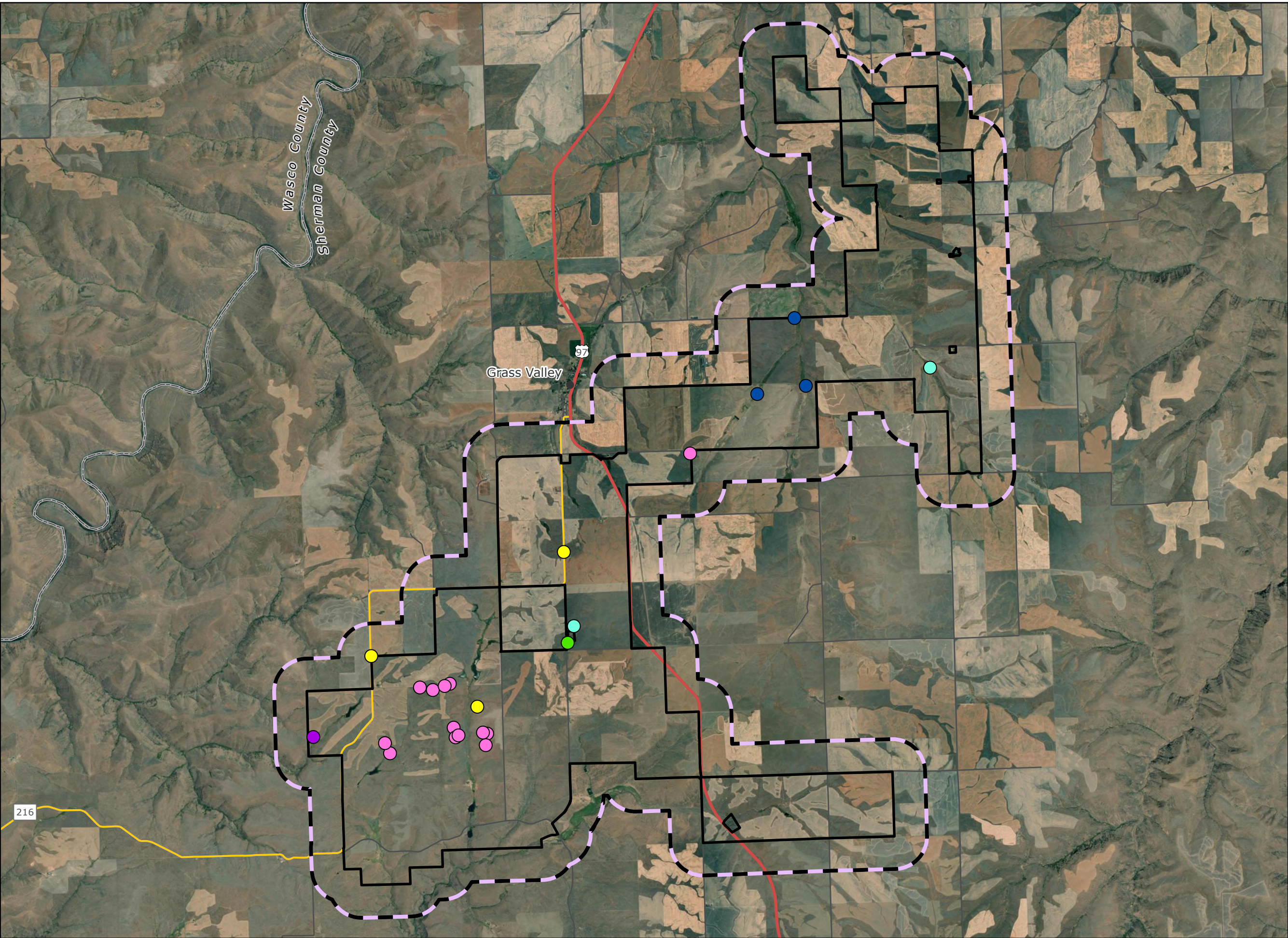
1:90,000

WGS 1984 UTM Zone 10N

0 1 2 4 6 8 Miles

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Speedway Energy Facility

Figure G-5
State Sensitive Wildlife
Observations within the
Analysis Area

SHERMAN COUNTY, OR

- Facility Site Boundary
- Analysis Area (0.5 mile buffer)
- City/Town
- County Boundary
- US Highway
- State Highway
- Local Roads
- Special Status Species*
 - Brewer's Sparrow
 - Common Nighthawk
 - Grasshopper Sparrow
 - Loggerhead Shrike
 - Swainson's Hawk
 - Jackrabbit**

* Observations are from Special Status Wildlife Surveys only
** Identified by scat only

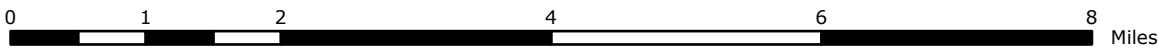


Reference Map



1:90,000

WGS 1984 UTM Zone 10N



NOT FOR CONSTRUCTION

Attachment G-1. Biological Survey Reports

1. Habitat Categorization and Special Status Wildlife Survey Report, 2024-2026 (June 2026)
2. 2025 Botanical Survey Report (September 2025)
3. Bat Acoustic Survey Report (March 2026)
4. 2025–2026 Eagle and Avian Use Surveys (May 2026)
5. 2023 Raptor Nest Survey Report (August 2023)
6. 2025 Raptor Nest Survey Report (June 2025)
 - a. *Figure 1. Speedway Energy Facility 2025 Raptor Nest Survey Results*
7. 2026 Raptor Nest Survey Report (May 2026)
 - a. *Figure 1. Speedway Energy Facility 2026 Raptor Nest Survey Results*

**Red indicates Confidential Documents Submitted Under Separate Cover*

Habitat Categorization and Special Status Wildlife Survey Report, 2024–2026

**Speedway Energy Facility
June 2026**

Prepared for



BGTF Speedway Project LLC

Prepared by



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Attachment 2. Habitat Types and Subtypes Potentially Occurring within the Habitat and Wildlife Survey Area
Attachment 3. Special Status Wildlife Species Potentially Occurring within the Habitat and Wildlife Survey Area
Attachment 4. Select Photographs from 2024-2026 Surveys
Attachment 5. Wildlife Species Observed within the Habitat and Wildlife Survey Area

1.0 Introduction

This report summarizes the methods and results of the 2024–2026 habitat categorization and special status wildlife surveys conducted by Tetra Tech for the Speedway Energy Facility (Facility), on behalf of BGTF Speedway Project LLC (BGTF).¹ Following the initial surveys completed in 2024 and 2025, 2026 surveys were conducted in areas of the Facility site boundary that had not previously been surveyed.

These surveys were conducted to support BGTF’s Application for Site Certification to the Oregon Energy Facility Siting Council. The objective was to map and classify habitat following Oregon Department of Fish and Wildlife (ODFW) guidelines under Oregon Administrative Rules (OAR) 635-415-0025, and to identify special status wildlife species.

2.0 Survey Area

The Facility is located on privately owned land in Sherman County, Oregon, immediately east and south of Grass Valley (Figure 1). Most of the land is agricultural.

In 2024, habitat categorization and special status wildlife surveys were conducted in the northeastern portion of the Facility (approximately 8,782 acres). In 2025, surveys were conducted in the southwestern portion of the Facility and covered approximately 11,175 acres; in 2026, approximately 2,580 acres were surveyed (Figure 1). The area describing the 2024, 2025, and 2026 survey areas combined encompasses 22,536 acres and will be hereafter referred to as the Habitat and Wildlife Survey Area.

3.0 Methods

3.1 Desktop Review

Prior to conducting field surveys in 2024, 2025, and 2026, Tetra Tech conducted a background review to identify potential habitat types and special status wildlife species with the potential to occur within the Habitat and Wildlife Survey Area. The review was based on a literature review and search of public information sources, including online databases (Johnson and O’Neil 2001, ODFW 2013, ODFW 2021, ODFW 2024, ORBIC 2019, OSU 2024, ORBIC 2025, ORBIC 2026, Sullivan et al. 2009, USFWS 2021, USFWS 2024, USFWS 2026a, USFWS 2026b; USGS 2026, Verts and Carraway 1998) and the expertise of Tetra Tech biologists. ODFW Priority Wildlife Connectivity Areas (PWCAs) were reviewed to identify overlapping priority regions, steppingstones, or connectors within the Habitat and Wildlife Survey Area (Figure 2; ODFW 2023). Aerial photography was reviewed to preliminarily assess existing habitats within the Habitat and Wildlife Survey Area.

¹ References to BGTF generally include or also refer to the parent company and predecessor in interest to the project, Brookfield Renewable N.A., except where specifically noted.

ODFW staff provided concurrence on the scope, timing, and extent of these surveys via video calls on May 10, 2024, and February 26, 2026. Fish were not addressed during the surveys and are not discussed in this report.

3.2 Survey Timing

The habitat categorization and special status species surveys were conducted over 3 years, aligned with BGTF's updating of the Facility site boundary and subsequent land access approvals. Surveys were scheduled to coincide with peak biological activity periods for neotropical migrant and breeding birds, as well as other foraging and breeding species, typically occurring in late spring and early summer. Habitat categorization surveys were timed during the growing season (spring to summer) to facilitate accurate vegetation identification.

3.3 Habitat Categorization Survey

The objective of the habitat categorization survey was to identify and classify habitats within the Habitat and Wildlife Survey Area per the habitat categories set forth in ODFW's Fish and Wildlife Habitat Mitigation Policy (see OAR 635-415-0025). ODFW's Fish and Wildlife Habitat Mitigation Policy defines six habitat quality categories ranging from Category 1 (high quality, irreplaceable wildlife habitat) to Category 6 (habitat with low potential to become essential habitat) (Table 1). Habitat types and subtypes were also defined and assigned based on habitat descriptions found in Wildlife-Habitat Relationships in Oregon and Washington (Johnson and O'Neil 2001).

Table 1. ODFW Habitat Category Definitions and Mitigation Goals (OAR 635-415-0025)

Habitat Category	Definition	Goals for Mitigation
1	Essential, limited, and irreplaceable habitat	No loss of habitat quantity or quality
2	Essential and limited habitat	No net loss of habitat quantity or quality and to provide a net benefit of habitat quantity or quality
3	Essential habitat, or important and limited habitat	No net loss of habitat quantity or quality
4	Important habitat	No net loss of habitat quantity or quality
5	Habitat having high potential to become either essential or important habitat	Net benefit in habitat quantity or quality
6	Habitat that has low potential to become essential or important habitat	Minimize impacts

Before field surveys, Tetra Tech used aerial imagery to desktop-delineate apparent changes in habitat types across the Facility to guide field efforts. Preliminary habitat polygons identified during this review were then confirmed or adjusted during field surveys.

Field surveys were conducted by biologists familiar with Columbia Plateau/Columbia Basin ecoregion habitats and species. Biologists walked meandering transects within the Habitat and Wildlife Survey Area to categorize the habitat, recording the dominant vegetation, plant species

composition, presence of weedy species, existing disturbance, and the likelihood of habitat use by local fauna (Attachment 1). Based on the observed characteristics, vegetation within the Habitat and Wildlife Survey Area was assigned a habitat type, subtype, and habitat quality category guided by the habitat categorization table (Attachment 2), which was developed based on Johnson and O'Neil (2001) and OAR 635-415-0025. Field data were recorded on Samsung Galaxy tablets using the FieldMaps application. A minimum mapping unit of 1 acre was implemented. Areas smaller than 1 acre were either merged with the surrounding habitat category or assigned the habitat type of adjacent parcels.

After field surveys, digitized habitat boundaries and categories were processed in a geographic information system (GIS). Wetlands and waters were not classified into habitat categories in the field and were instead categorized based on the targeted wetlands and waters surveys conducted in 2024, 2025, and 2026. Post-survey data processing was done in collaboration with Tetra Tech wetland scientists, using the results of the wetland and other waters delineations conducted for the Facility to assist with categorizing wetland and waterway features according to the habitat categorization table (Attachment 2; Tetra Tech 2025).

3.4 Special Status Wildlife Survey

The objective of the special status wildlife survey was to document general and special status wildlife species use within the Habitat and Wildlife Survey Area. Special status wildlife includes federal, and state endangered, threatened, proposed, and candidate species; U.S. Fish and Wildlife Service (USFWS) species of concern, bald and golden eagles (protected under the Bald and Golden Eagle Protection Act [BGEPA]), and birds of conservation concern (BCC); and ODFW sensitive and sensitive-critical species (ODFW 2021, ODFW 2024, ORBIC 2019, USFWS 2021, USFWS 2024, USFWS 2026a).

Prior to surveys, Tetra Tech reviewed habitat and range information for special status wildlife species known to occur in Sherman County, Oregon, and the Columbia Plateau/Columbia Basin ecoregion to develop the list of species potentially present within the Facility. Species were excluded if their habitat was absent or their range did not overlap the Facility. This list was reviewed before fieldwork to ensure surveyor familiarity (Attachment 3).

Tetra Tech also requested site-specific records from the Oregon Biodiversity Information Center (ORBIC) for occurrences of special status species and sensitive habitats within 5 miles of the Facility (ORBIC 2025, ORBIC 2026).

Special status wildlife species surveys were conducted concurrently with habitat categorization surveys. Biologists walked meandering transects through non-cultivated areas, scanning and listening for wildlife and signs such as scat, tracks, burrows, and nests. Surveys occurred from early morning through late afternoon to maximize detection of special status target species known to be active during dawn and dusk periods, including crepuscular birds like common nighthawk (*Chordeiles minor*) and northern harrier (*Circus cyaneus*), as well as nocturnal or crepuscular bats (Attachment 3). Targeted surveys for raptor nests, bats, and avian use were also conducted, with the results presented in separate reports.

Surveyors recorded locations of special status species or their indicators using GPS-enabled tablets with the FieldMaps application, noting the counts of individuals and behaviors. They also maintained a running list of observed wildlife and documented special habitats and features like raptor nests, cliffs, rimrock, rock outcrops, and talus slopes. After fieldwork, data were downloaded, processed in GIS, and reviewed for quality control.

4.0 Results

4.1 Desktop Review

Based on a desktop review, Tetra Tech developed a habitat categorization table listing seven habitat types and 17 subtypes (Categories 2 to 6) potentially occurring within the Habitat and Wildlife Survey Area (Attachment 2). The same habitat categorization matrix was used for the 2024–2026 surveys.

The ODFW Big Game Winter Range review indicates that the Habitat and Wildlife Survey Area overlaps the mule deer winter range in its southwestern section and the ODFW Elk Winter Range is in the vicinity, but does not overlap the Habitat and Wildlife Survey Area (Figure 2; ODFW 2013). PWCAs intersect the Habitat and Wildlife Survey Area at three narrow corridors running north-south and east-west (Figure 2; ODFW 2023) and also cross into the northern and southern sections.

Tetra Tech’s review identified 22 special status wildlife species with potential to occur, including six mammals, two reptiles, 13 birds, and one invertebrate (Attachment 3). Data from ORBIC (2025 and 2026) showed 12 occurrence records for four special status species within 5 miles of the Facility’s vicinity: Nine golden eagle (*Aquila chrysaetos*) nesting areas last documented as active pre-1982 through 2019, one Swainson’s hawk (*Buteo swainsoni*) observation recorded in 1977, one hoary bat (*Lasiurus cinereus*) last observed in 2014, and one white-tailed jackrabbit (*Lepus townsendii*) last observed pre-1972. All were located outside of the Habitat and Wildlife Survey Area (ORBIC 2025 and 2026).

4.2 Survey Timing

Habitat categorization and special status wildlife surveys were conducted on April 8–13 and July 24–26, 2024, for the 2024 Survey Area, on June 17–20, 2025, for the 2025 Survey Area, and on April 13-15 and April 20-21, 2026, for the 2026 Survey Area.

4.3 Habitat Categorization Survey

Tetra Tech biologists conducted habitat categorization surveys across the entire 22,536-acre Habitat and Wildlife Survey Area (Table 1; Figures 3–5). Photos of selected habitat subtypes from the surveys are included in Attachment 4.

The Habitat and Wildlife Survey Area is predominantly row crops (subtype Orchards, Vineyards, Wheat Fields, Other Row Crops), covering 45 percent of the total acreage. Eastside Grasslands are the second most common habitat subtype, comprising 36 percent. Sagebrush Shrub-steppe

accounts for about 7 percent, Planted Grasslands accounts for about 6 percent, and Rabbitbrush/Snakeweed Shrubland accounts for about 5 percent. Five habitat subtypes—row crops (including Orchards, Vineyards, Wheat Fields, and Other Row Crops), Eastside Grasslands, Sagebrush Shrub-Steppe, Rabbitbrush/Snakeweed Shrubland, and Planted Grasslands—together make up 98 percent of the total acreage in the Habitat and Wildlife Survey Area (Table 2). Non-agricultural areas consist mainly of weedy Eastside Grasslands mixed with Sagebrush Shrub-Steppe, Rabbitbrush/Snakeweed Shrubland, and Planted Grasslands. Many of the Planted Grasslands are enrolled in the Natural Resources Conservation Service Conservation Reserve Program (CRP).

Table 2. Habitat Categories, Types, and Subtypes within the Habitat and Wildlife Survey Area

Habitat Type	Habitat Subtype	Total Acres	Habitat Category and Acres				
			2	3	4	5	6
Upland Grassland, Shrub-steppe and Shrubland	Eastside Grasslands	8,095.0	2,749.7	3,602.4	1,022.2	720.7	–
	Rabbitbrush/Snakeweed Shrubland	1,029.4	511.7	82.7	435.0	–	–
	Sagebrush Shrub-Steppe	1,547.9	1,054.2	493.7	–	–	–
Riparian-Forest, Natural Shrubland, or Emergent Complexes	Eastside (Interior) Riparian-Emergent	55.9	0.2	46.1	–	9.6	–
	Eastside (Interior) Riparian-Forested or Natural Shrubland	7.2	–	7.2	–	–	–
Wetlands	Emergent Wetlands	59.0	5.2	52.8	0.1	0.9	–
	Scrub-shrub Wetlands	0.4	0.2	0.2	–	–	–
Open Water – Lakes, Rivers, Streams	Intermittent or Ephemeral Streams	9.7	0.2	<0.1	2.1	7.4	–
	Perennial Streams	0.1	–	0.1	–	–	–
	Permanent Ponds/Lakes	1.8	–	1.0	0.8	–	–
	Seasonal Ponds	9.7	–	–	9.6	<0.1	–
	Planted Grasslands	1,360.1	–	818.7	541.4	–	–

Habitat Type	Habitat Subtype	Total Acres	Habitat Category and Acres				
			2	3	4	5	6
Agriculture, Pasture, and Mixed Environs	Orchards, Vineyards, Wheat Fields, Other Row Crops	10,164.2	-	-	-	-	10,164.2
Urban and Mixed Environs	Urban and Mixed Environs	196.0	-	-	-	-	196.0
Total		22,536.3	4,321.4	5,104.8	2,011.2	738.8	10,360.2
Note: Totals in this table may not appear to sum due to rounding.							

Category 2 habitat covered 4,321.4 acres (19 percent) of the Habitat and Wildlife Survey Area, consisting of seven subtypes: Sagebrush Shrub-Steppe, Rabbitbrush/ Snakeweed Shrubland, Eastside Grasslands, Eastside (Interior) Riparian, Emergent Wetlands, Scrub-Shrub Wetlands, and Intermittent or Ephemeral Streams (Table 2). All Category 2 habitat types are considered high-quality habitat.

Category 3 habitat covered 5,104.8 acres (23 percent) of the Habitat and Wildlife Survey Area and included Sagebrush Shrub-Steppe, Rabbitbrush/Snakeweed Shrubland, Eastside Grasslands, Planted Grasslands, Eastside (Interior) Riparian, Eastside (Interior) Riparian-Forested or Natural Shrubland, Emergent Wetlands, Permanent Ponds/Lakes, and smaller areas of Scrub-Shrub Wetlands, Perennial Streams, and Intermittent or Ephemeral Streams.

Category 4 habitats, totaling 2,011.3 acres (9 percent), included Rabbitbrush/Snakeweed Shrubland, Eastside Grasslands, Planted Grasslands, and Open Water and Wetlands subtypes such as Seasonal Ponds, Intermittent or Ephemeral Streams, Permanent Ponds/Lakes, and Emergent Wetlands. Category 4 Rabbitbrush/Snakeweed and Eastside Grasslands were more degraded than Category 3, with lower cover of native plants. Open Water and Wetlands habitats in this category covered approximately 12.6 acres.

Category 5 habitat made up 3 percent of the Habitat and Wildlife Survey Area, dominated by Eastside Grasslands (720.7 acres), with smaller amounts of Eastside (Interior) Riparian (9.6 acres), Intermittent or Ephemeral Streams (7.3 acres), Emergent Wetlands (0.9 acres), and Seasonal Ponds (<0.1 acres).

Category 6 habitat was the most extensive, covering 46 percent of the area, with 10,360.2 acres as Orchards, Vineyards, Wheat Fields, and Other Row Crops, with an additional 196.0 acres of Urban and Mixed Environs.

In total, the Habitat and Wildlife Survey Area includes Categories 2 through 6 and 14 habitat subtypes ranked by acreage (Table 2, Figures 3–5):

1. Orchards, Vineyards, Wheat Fields, Other Row Crops;
2. Eastside Grasslands;

3. Planted Grasslands;
4. Sagebrush Shrub-Steppe;
5. Rabbitbrush / Snakeweed Shrubland;
6. Urban and Mixed Environs;
7. Emergent Wetlands;
8. Eastside (Interior) Riparian - Emergent;
9. Seasonal Ponds;
10. Intermittent or Ephemeral Streams;
11. Eastside (Interior) Riparian – Forested or Natural Shrubland;
12. Permanent Ponds/Lakes;
13. Scrub-shrub Wetlands;
14. Perennial Streams.

Water-related habitat subtypes (Eastside (Interior) Riparian- Emergent, Eastside (Interior) Riparian – Forested or Natural Shrubland, Emergent Wetlands, Scrub-Shrub Wetlands, Seasonal Ponds, Intermittent or Ephemeral Streams, Permanent Ponds/Lakes, and Perennial Streams) are described below and in detail in the 2024–2026 Wetland and Other Waters Delineation Report (Tetra Tech 2025).

4.3.1 Orchards, Vineyards, Wheat Fields, Other Row Crops

This subtype is the most common, representing 98 percent of Category 6 habitat and 45 percent of the Habitat and Wildlife Survey Area. It includes actively growing or fallow wheat fields (in active rotation) and associated access roads. These lands have low restoration potential.

4.3.2 Eastside Grasslands

4.3.2.1 Category 2

Category 2 Eastside Grasslands were dominated by bluebunch wheatgrass with presence of spring draba (*Draba verna*), Sandberg bluegrass (*Poa secunda*), bulbous bluegrass (*Poa bulbosa*), and milkvetch species (*Astragalus* sp.). The cover of non-native species was low and they were not dominant. Category 2 Eastside Grasslands sometimes contained a sagebrush component (big sagebrush [*Artemisia tridentata*]) with less than 10 percent canopy cover (Johnson and O'Neill 2001). Other Category 2 Eastside Grasslands contained a small percentage (5 percent or less) of gray horsebrush (*Tetramydia canescens*) and rubber rabbitbrush (*Ericameria nauseosa*).

4.3.2.2 Category 3

Category 3 Eastside Grasslands cover 71 percent of Category 3 habitat and were characterized by moderate grazing intensity and an approximately even mix of native and non-native plant species. Some areas of Category 3 Eastside Grassland also contained a minor sagebrush component and trace rubber rabbitbrush. Dominant species in Category 3 Eastside Grassland habitat included bluebunch wheatgrass, Sandberg's bluegrass, and yarrow (*Achillea millefolium*). Medusahead (*Taeniatherum caput-medusae*), a non-native weedy grass, was also dominant in Category 3 Eastside Grasslands.

4.3.2.3 Category 4

Category 4 Eastside Grasslands were highly disturbed and covered by mostly non-native plants with 15–50 percent native cover. Low cover (less than 10 percent) of shrubs, notably rubber rabbitbrush, were present in Category 4 Eastside Grasslands. No sagebrush was detected. Cheatgrass (*Bromus tectorum*) and alfalfa (*Medicago sativa*) were the dominant grass and forb species, with a mix of native and non-native subdominant grasses and forbs.

4.3.2.4 Category 5

Eastside Grasslands that were listed as Category 5 contained no sagebrush element, were very highly disturbed, and included less than 15 percent native ground cover. Category 5 Eastside Grasslands were more degraded and disturbed than Category 4 habitat of the same subtype and contained a higher proportion of weedy plant species such as cheatgrass, medusahead, prickly lettuce (*Lactuca serriola*), Russian thistle (*Salsola tragus*), bull thistle (*Cirsium vulgare*), Canada thistle (*Cirsium arvense*), diffuse knapweed (*Centaurea diffusa*), Scotch thistle (*Onopordum acanthium*), and field bindweed (*Convolvulus arvensis*). Low ground cover of native shrubs (less than 5 percent) was identified, including gray horsebrush, rubber rabbitbrush, and broom snakeweed (*Gutierrezia sarothrae*).

4.3.3 Planted Grasslands

4.3.3.1 Category 3

Category 3 Planted Grasslands make up 16 percent of the total Category 3 habitat acreage. These grasslands were likely seeded from a CRP seed mix, including intermediate wheatgrass (*Thinopyrum intermedium*), bluebunch wheatgrass, and alfalfa, with minimal additional non-native cover. Occasional trace western juniper (*Juniperus occidentalis*) were observed and no shrub cover was present. Several landowners confirmed their lands were currently enrolled in CRP.

4.3.3.2 Category 4

Category 4 Planted Grasslands contained low species diversity and significant weedy grass encroachment. Category 4 Planted Grasslands were dominated by Idaho fescue (*Festuca idahoensis*)

and bluebunch wheatgrass, with alfalfa, medusahead, and cheatgrass as notable subdominant species. While Category 4 Planted Grasslands generally had a low proportion of native plant species, this habitat was mapped as Category 4 due to the presence of desirable non-native species such as alfalfa, which provide quality forage for big game. These grasslands were considered Category 4 because they lack later seral stage vegetation communities or are of less importance to wildlife habitat due to their management or location relative to large swaths of agricultural land.

4.3.4 Rabbitbrush/ Snakeweed Shrubland

4.3.4.1 Category 2

Rabbitbrush/Snakeweed Shrubland was the second most common Category 2 habitat type, characterized by a high degree of cover of rubber rabbitbrush and an understory of dominant native grasses such as bluebunch wheatgrass, and dominant native forbs such as buckwheat (*Eriogonum sp.*), balsamroot (*Balsamorhiza sp.*), yarrow, and velvet lupine (*Lupinus leucophyllus*). The forb and grass stratum was diverse in this habitat subtype and most species present were native.

4.3.4.2 Category 3

Category 3 Rabbitbrush/Snakeweed Shrubland consisted of a majority native species cover, with 50 to 75 percent cover being native species, as well as a high cover of large, mature rubber rabbitbrush (approximately 35 percent ground cover). Native bunchgrasses including bluebunch wheatgrass and Idaho fescue were considered dominant (greater than 20 percent cover) and subdominant (10 to 20 percent cover), respectively.

4.3.4.3 Category 4

Category 4 Rabbitbrush/Snakeweed Shrubland consisted of highly disturbed habitat with a high percentage of non-native species (50–85 percent non-native). Grazing and human interference were common in these habitat subtypes. Trace planted cottonwoods (*Populus sp.*) were present, along with high cover of less mature shrubs than identified in Category 2 or 3 habitat subtypes. Grass and forb cover was dominated by non-native annual grasses including cheatgrass, bulbous bluegrass, and crested wheatgrass (*Agropyron cristatum*).

4.3.5 Sagebrush Shrub-Steppe

4.3.5.1 Category 2

Sagebrush Shrub-Steppe was characterized by mature, large sagebrush with a high degree of cover as well as high cover of other native shrubs including rubber rabbitbrush and yellow rabbitbrush (*Chrysothamnus vicidiflorus*). The understory was composed of dominant native grasses such as bluebunch wheatgrass and Sandberg's bluegrass. Western juniper was found intermittently in this

habitat type. This habitat subtype contains good structure and forage for local wildlife, and is more diverse than Category 3 habitat.

4.3.5.2 Category 3

Category 3 Sagebrush Shrub-Steppe (10 percent of total Category 3 habitat) was similar to Category 2 Sagebrush Shrub-Steppe, but had higher cattle grazing intensity, higher non-native vegetation cover, and lower cover of mature sagebrush. Some Category 3 Sagebrush Shrub-Steppe also contained an element of encroaching western juniper. This habitat subtype also contained additional native rubber rabbitbrush shrub cover, but its grass and forb understory was dominated by non-native species including cheatgrass and tall tumblemustard (*Sisymbrium altissimum*).

4.3.6 Urban and Mixed Environs

The Category 6 Urban and Mixed Environs subtype included all developed areas, including farmhouses, residences and associated driveways, farm equipment, and roads. These are considered to have low restoration potential. Planted pines (*Pinus sp.*), maple (*Acer sp.*), and willow (*Salix sp.*) trees were present with low cover, along with similarly dominant rubber rabbitbrush. Understory was populated with occasional native bunchgrasses, but more commonly non-native grasses, ragweed (*Ambrosia artemisiifolia*), and dandelions (*Taraxacum officinale*).

4.3.7 Eastside (Interior) Riparian – Emergent

4.3.7.1 Category 2

Category 2 Eastside (Interior) Riparian – Emergent covered less than half an acre. These patches were relatively undisturbed and dominated by native upland species and riparian-associated species, including big sagebrush and native bunchgrasses. Field indicators of wetland hydrology (e.g., surface water, saturation at rooting depth, recent inundation signs) and hydric soils were absent. Non-native reed canary grass (*Phalaris arundinacea*) was present at relatively high cover in some patches, but did not coincide with other wetland indicators and therefore does not indicate wetland conditions in this context.

4.3.7.2 Category 3

Category 3 Eastside (Interior) Riparian – Emergent contained a higher proportion of non-native forbs and graminoids compared with Category 2, most notably reed canary grass. As with Category 2 patches, no wetland hydrology or hydric soils were observed; vegetation composition reflects disturbance and non-wetland mesic conditions rather than a hydrophytic wetland community.

4.3.7.3 Category 5

Category 5 Eastside (Interior) Riparian – Emergent was applied where the waterway corridor or adjacent vegetation was dominated almost entirely by non-native species and provided negligible

habitat value. These areas lacked wetland hydrologic indicators and hydric soils and thus were considered degraded non-wetland riparian/mesic habitat rather than wetland.

4.3.8 Eastside (Interior) Riparian – Forested or Natural Shrubland

4.3.8.1 Category 3

Category 3 Eastside (Interior) Riparian – Forested or Natural Shrubland included mid-seral riparian habitat subtypes which likely provided wildlife habitat. This subtype covered approximately 7.2 acres in the Habitat and Wildlife Survey Area and included a shrub element of big sagebrush, yellow rabbitbrush, or rubber rabbitbrush.

4.3.9 Emergent Wetlands

4.3.9.1 Category 2

Category 2 Emergent Wetlands covered approximately 5.2 acres in the Habitat and Wildlife Survey Area. Category 2 emergent wetlands were dominated by broad-leaf cattail (*Typha latifolia*) and were largely undisturbed.

4.3.9.2 Category 3

Category 3 Emergent Wetlands contained a higher proportion of non-native forbs, specifically reed canary grass. Category 3 Emergent Wetlands contained a mixture of native and nonnative plants and had low to moderate disturbance.

4.3.9.3 Category 4

Category 4 Emergent Wetlands contained a mixture of native and non-native plants and had a moderate to high level of disturbance. Category 4 Emergent Wetlands covered approximately 0.1 acres of the Habitat and Wildlife Survey Area.

4.3.9.4 Category 5

Category 5 Emergent Wetlands contained a majority of non-native plants and are highly disturbed. These wetlands have often been farmed or previously filled. Category 5 Emergent Wetlands covered approximately 0.9 acres of the Habitat and Wildlife Survey Area.

4.3.10 Seasonal Ponds

4.3.10.1 Category 4

Seasonal Ponds considered Category 4 were highly degraded and contained little to no native vegetation around their margins. Some of these identified in the Habitat and Wildlife Survey Area were seasonal stock ponds.

4.3.10.2 Category 5

Category 5 Seasonal Ponds were almost completely dominated by nonnative plant species or were otherwise highly degraded.

4.3.11 Intermittent or Ephemeral Streams

4.3.11.1 Category 2

Category 2 Intermittent or Ephemeral Streams are fish-bearing natural stream channels that support native, migratory fish. These streams provide good spawning (gravel beds present, non-embedded) and/or rearing habitat, with native emergent, shrub, or forested riparian margins. There are 0.2 acres of Category 2 Intermittent or Ephemeral Streams within the Habitat and Wildlife Survey Area.

4.3.11.2 Category 3

Category 3 Intermittent or Ephemeral Streams make up less than 1 percent of all Category 3 lands within the Habitat and Wildlife Survey Area and are discussed in more detail in the Wetland and Other Waters Delineation Report (Tetra Tech 2025).² These streams were natural fish-bearing channels that did not support native, migratory fish, or were non-fish-bearing channels which drained into fish-bearing streams.

4.3.11.3 Category 4

Category 4 Intermittent or Ephemeral Streams are non-fish-bearing natural streams channels that do not directly drain into fish-bearing streams. These streams have some restoration potential.

4.3.11.4 Category 5

Intermittent or ephemeral streams were categorized as Category 5 when the waterway's habitat was dominated almost completely by non-native species and was considered unimportant habitat. The streams are non-fish bearing with minimal restoration potential and did not drain into fish-bearing streams.

4.3.12 Permanent Ponds and Lakes

4.3.12.1 Category 3

The Category 3 Permanent Ponds were man-made and contained both native broad-leaf cattail and several non-native species. These were open water areas with low-quality habitat.

² A revised delineation report with 2026 survey results was in progress at the time of this report.

4.3.12.2 Category 4

Permanent Ponds considered Category 4 are highly degraded and contain little to no native vegetation around their perimeters (for example, a highly degraded stock pond).

4.3.13 Scrub-shrub Wetlands

4.3.13.1 Category 2

Category 2 Scrub-shrub Wetlands are high-quality wetland habitat, dominated by native plant species. These wetlands contained a woody vegetation element that were less than 20 feet tall. There was approximately 0.2 acres of Category 2 Scrub-shrub Wetlands present within the Habitat and Wildlife Survey Area.

4.3.13.2 Category 3

Category 3 Scrub-shrub Wetlands (0.2 acres) make up less than 1 percent of all Category 3 lands within the Habitat and Wildlife Survey Area. Subtype consisted of a mixture of native and non-native plant species and had low to moderate disturbance.

4.3.14 Perennial Streams

Category 3 Perennial Streams contained fish-bearing natural stream channels that did not support native, migratory fish and provided marginal spawning (gravel present in pockets/30 percent embedded) and/or rearing habitat, or were non-fish-bearing natural stream channels which drained into fish-bearing streams. Perennial Streams covered 0.1 acres within the Habitat and Wildlife Survey Area.

4.4 Special Status Wildlife Survey

Tetra Tech biologists conducted special status wildlife surveys within the Habitat and Wildlife Survey Area to document general wildlife use and occurrences of special status species. During the surveys, they observed 53 bird species, 12 mammal species, two reptile species, one insect, and one amphibian species. No federal or state threatened or endangered species were detected but one bald eagle (*Haliaeetus leucocephalus*) was observed.

Seven special status bird species were recorded across the 2024–2026 surveys: one bald eagle (federal: BGEPA), one Brewer's sparrow (*Spizella breweri breweri*; ODFW: Sensitive), two common nighthawks (*Chordeiles minor*; federal: BCC, ODFW: Sensitive), 13 grasshopper sparrows (*Ammodramus savannarum*; federal: BCC, ODFW: Sensitive), three loggerhead shrikes (*Lanius ludovicianus*; federal: BCC, ODFW: Sensitive), seven northern harriers (*Circus cyaneus*; federal: BCC), and four Swainson's hawks (ODFW: Sensitive) occurrences were observed (Table 3, Figure 6, Attachment 5). In addition, one special status insect species was observed: monarch butterfly (*Danaus plexippus*; federal: proposed threatened). Special status species were found in the following conditions:

- The bald eagle was seen hunting over ponds containing waterfowl directly east of Sherman Highway (US-97).
- The Brewer's sparrow was detected by vocalization near Finnegan Road, likely within high-quality Eastside Grasslands.
- Common nighthawks were seen in Category 3 Eastside Grasslands in the southwest area, flying or flushed from the ground toward an adjacent canyon.
- Grasshopper sparrows were identified by song and sight, often perched on fence posts in Eastside Grasslands.
- Loggerhead shrikes were recorded only in the 2024 Survey Area, perched on fences and powerlines near riparian zones bordered by Rabbitbrush/Snakeweed Shrubland and Eastside Grasslands.
- A monarch butterfly was seen flying low to the ground in Category 4 Planted Grassland habitat.
- Northern harriers were observed hunting and soaring over agricultural fields, streams, and Eastside Grasslands.
- Swainson's hawks were detected visually and auditorily near Eastside Grasslands, often perched on fence posts.

White-tailed jackrabbits, identified as a Species of Greatest Conservation Need by ODFW (ODFW 2026) (though not ODFW sensitive in the Columbia Plateau), may have been present on site. Jackrabbit scat was found during 2024 and 2025 surveys but could not be reliably distinguished between white-tailed (*Lepus townsendii*) and black-tailed (*Lepus californicus*) jackrabbits; thus, it was identified only to genus (*Lepus* sp.). In 2026, a black-tailed jackrabbit was seen in the southern portion of the site.

Eight raptor species were observed perched, hunting, and/or flying during surveys: bald eagle, northern harrier, Swainson's hawk, prairie falcon (*Falco mexicanus*), American kestrel (*Falco sparverius*), turkey vulture (*Cathartes aura*), red-tailed hawk (*Buteo jamaicensis*), and Cooper's hawk (*Accipiter cooperii*). In 2024, surveyors noted one in-use red-tailed hawk nest and one inactive nest of an unknown raptor species and, in 2025, one inactive nest of an unknown raptor species was identified (Figure 6).

Mule deer individuals, herds, scat, and tracks were widespread, especially in Rabbitbrush/Snakeweed Shrubland and Eastside Grasslands. Additionally, biologists found multiple instances of coyote (*Canis latrans*) scat, as well as evidence of Belding's ground squirrel (*Urocitellus beldingi*). Numerous Belding's ground squirrel colonies were present throughout the Habitat and Wildlife Survey Area and concentrated in grassland habitat. Colonies were identified by observation of individuals and characteristic alarm calls, scat, and burrows. These species do not have a special listing status in Oregon.

Biologists also observed two reptile species, one amphibian species, and one insect species in the Habitat and Wildlife Survey Area: the western fence lizard (*Sceloporus occidentalis*), the western terrestrial garter snake (*Thamnophis elegans*), the Pacific chorus frog (*Pseudacris regilla*), and the monarch butterfly.

Special status wildlife species observed in the Habitat and Wildlife Survey Area during 2024, 2025, and 2026 field surveys are provided in Table 3 below. A complete list of wildlife species observed is included as Attachment 5.

Table 3. Special Status Wildlife Species Observed During Surveys

Taxa	Common Name	Scientific Name	Federal Status ¹	ODFW Status in Columbia Plateau
Bird	bald eagle	<i>Haliaeetus leucocephalus</i>	BGEPA	–
	Brewer’s sparrow	<i>Spizella breweri breweri</i>	–	S
	common nighthawk	<i>Chordeiles minor</i>	BCC	S
	grasshopper sparrow	<i>Ammodramus savannarum</i>	BCC	S
	loggerhead shrike	<i>Lanius ludovicianus excubitorides</i>	BCC	S
	northern harrier	<i>Circus cyaneus</i>	BCC	–
	Swainson’s hawk	<i>Buteo swainsoni</i>	–	S
Insect	monarch butterfly	<i>Danaus plexippus</i>	PT	–
Mammal	jackrabbit ³	<i>Lepus</i> sp.	–	CSS
Species and status: ODFW 2021, ODFW 2024, ORBIC 2019, ORBIC 2025, ORBIC 2026, USFWS 2021, USFWS 2024. 1. Federal Status: BCC = Bird of Conservation Concern, BGEPA = Bald and Golden Eagle Protection Act, PT = Proposed Threatened 2. ODFW Status in the Columbia Plateau/Columbia Plateau: S = Sensitive Species, SC = Sensitive Critical Species, CSS = Conservation Strategy Species. 3. White-tailed jackrabbit is not considered a sensitive species in the Columbia Plateau/Columbia Basin ecoregion (ODFW 2021) but is included in this table as requested by ODFW because it is a Species of Greatest Conservation Need (ODFW 2026). Jackrabbit scat was found during 2024 and 2025 surveys but could not be reliably distinguished between white-tailed and black-tailed jackrabbits; thus, it was identified only to genus (<i>Lepus</i> sp.).				

5.0 Summary and Discussion

Based on field surveys, the Habitat and Wildlife Survey Area contains habitat types meeting OAR 635-415-0025 definitions for Categories 2 through 6. Several PWCA connectors and regions intersect the site (Figure 2), which may require higher mitigation efforts than indicated by the field-determined habitat category alone. The site lies outside the ODFW Elk Big Game Winter Range but overlaps the Mule Deer Winter Range in its southwestern portion (Figure 2), which is typically considered Category 2 habitat where not cultivated or developed (ODFW 2013). Big game sign (scat and tracks) and sightings were common throughout the area, with canyons and wildlife corridors between agricultural fields serving as movement pathways. Several special status species and mule deer were observed within PWCA connectors.

Tetra Tech mapped 32 habitat categories and subtype combinations based on vegetation characteristics. Below is a summary of each habitat category present, its definition, mitigation goals per ODFW's Fish and Wildlife Habitat Mitigation Policy (OAR 635-415-0025), and habitat subtypes identified:

- **Category 2:** Essential and limited habitat with a mitigation goal of no net loss of habitat quantity or quality, and to provide a net benefit of habitat quantity or quality. Mitigation strategy includes in-kind, in-proximity mitigation.
 - Habitat subtypes identified in Habitat and Wildlife Survey Area:
 - Sagebrush Shrub-Steppe
 - Rabbitbrush/Snakeweed Shrubland
 - Eastside Grasslands
 - Eastside (Interior) Riparian-Emergent
 - Emergent Wetlands
 - Scrub-shrub Wetlands
 - Intermittent or Ephemeral Streams
- **Category 3:** Essential habitat, or important and limited habitat. Mitigation goal of no net loss of habitat quantity or quality. Mitigation strategy of in-kind and in-proximity mitigation.
 - Habitat subtypes:
 - Sagebrush Shrub-Steppe
 - Rabbitbrush/Snakeweed Shrubland
 - Eastside Grasslands
 - Eastside (Interior) Riparian-Emergent
 - Eastside (Interior) Riparian-Forested or Natural Shrubland
 - Emergent Wetlands
 - Scrub-shrub Wetlands
 - Planted Grasslands
 - Intermittent or Ephemeral Streams
 - Perennial Streams
 - Permanent Ponds/Lakes
- **Category 4:** Important habitat. Mitigation goal of no net loss of habitat quantity or quality. Mitigation strategy of in-kind or out-of-kind, in-proximity or off-proximity mitigation.

- Habitat subtypes identified in Habitat and Wildlife Survey Area:
 - Eastside Grasslands
 - Rabbitbrush/Snakeweed Shrubland
 - Planted Grasslands
 - Emergent Wetlands
 - Intermittent or Ephemeral Streams
 - Permanent Ponds/Lakes
 - Seasonal Ponds
- **Category 5:** Habitat with high potential to become either essential or important habitat. Mitigation goal of net benefit of habitat quantity or quality. Mitigation strategy of actions that improve habitat conditions.
 - Habitat subtypes identified in Habitat and Wildlife Survey Area:
 - Eastside Grasslands
 - Eastside (Interior) Riparian-Emergent
 - Intermittent or Ephemeral Streams
 - Seasonal Ponds
 - Emergent Wetlands
- **Category 6:** Habitat that has low potential to become essential or important habitat. Mitigation goal and strategy is to minimize impacts (i.e., no habitat mitigation is needed for impacts to Category 6 habitat).
 - Habitat subtypes identified in Habitat and Wildlife Survey Area:
 - Urban and Mixed Environs
 - Orchards, Vineyards, Wheat Fields, Other Row Crops

Eight special status species were documented: bald eagle, Brewer's sparrow, common nighthawk, grasshopper sparrow, loggerhead shrike, monarch butterfly, northern harrier, and Swainson's hawk, along with one potential Species of Greatest Conservation Need, the white-tailed jackrabbit.

No federal or state threatened, endangered, or candidate species were observed in the Habitat and Wildlife Survey Area.

6.0 References

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Figures

Speedway Energy

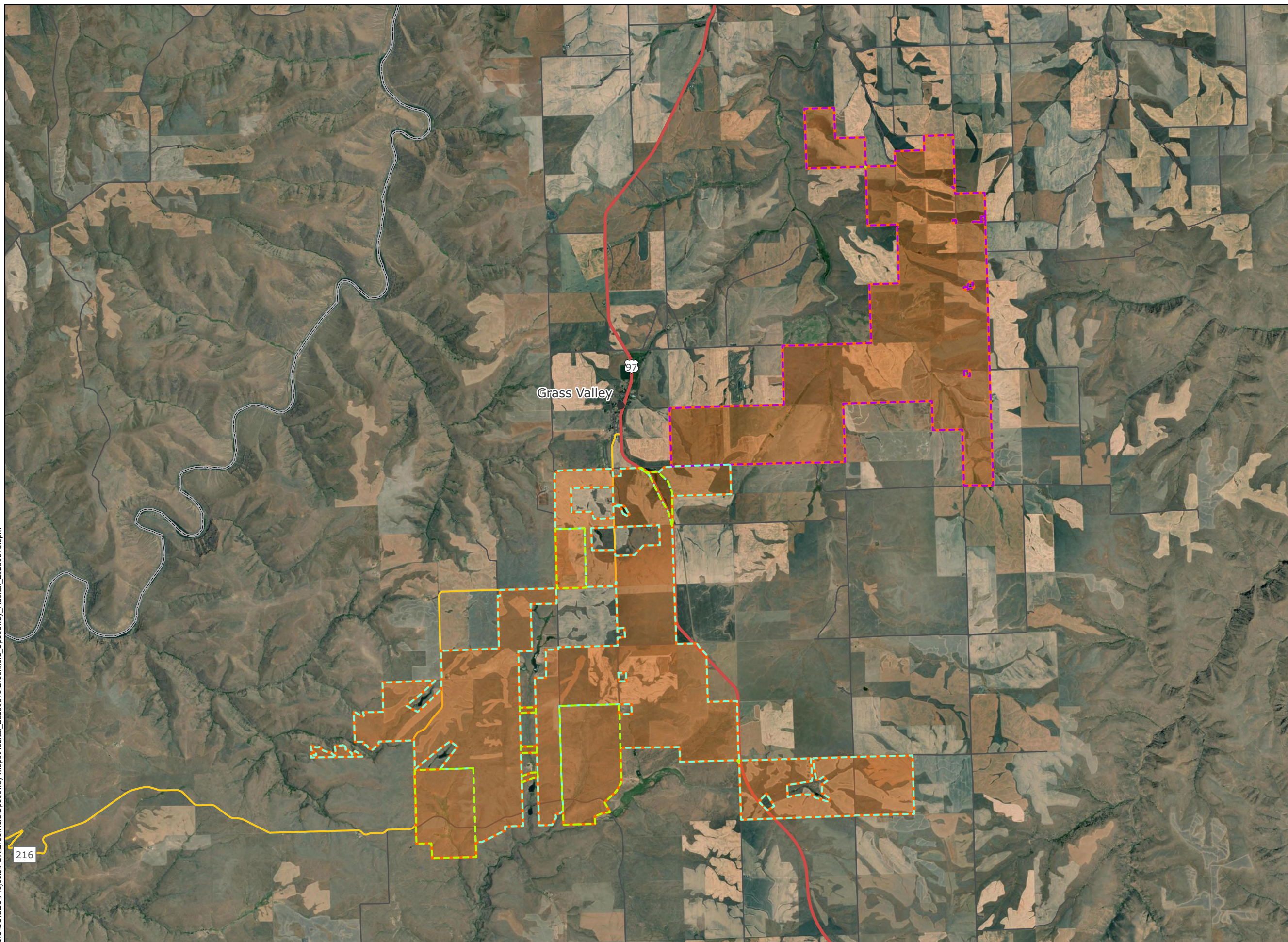
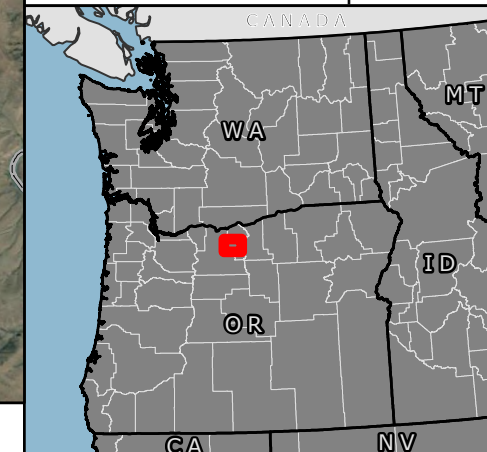
Figure 1
Survey Area

SHERMAN COUNTY, OR

-  Habitat and Wildlife Survey Area
-  2026 Survey Area
-  2025 Survey Area
-  2024 Survey Area
-  City/Town
-  County Boundary
-  US Highway
-  State Highway
-  Local Roads



Reference Map



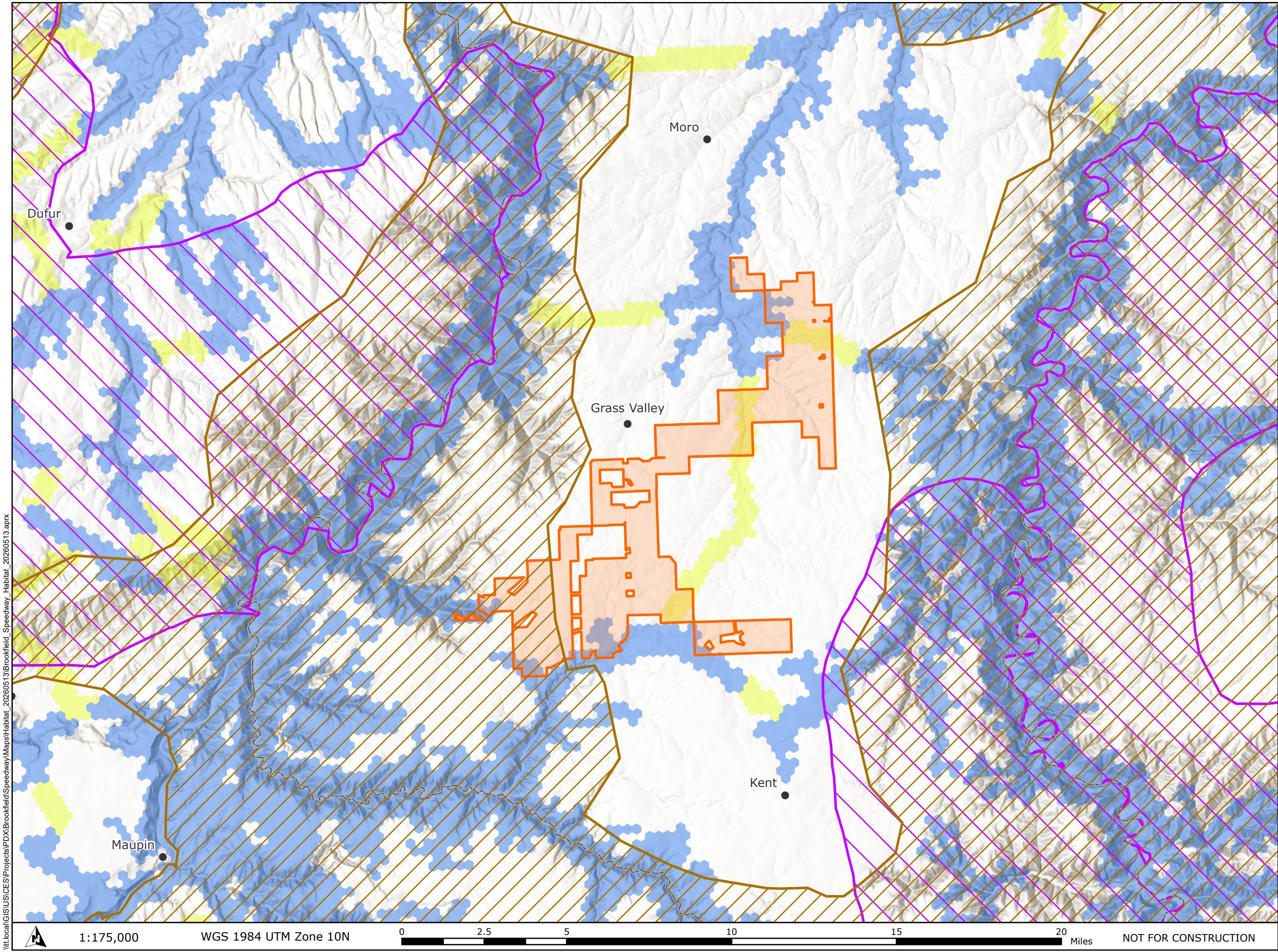
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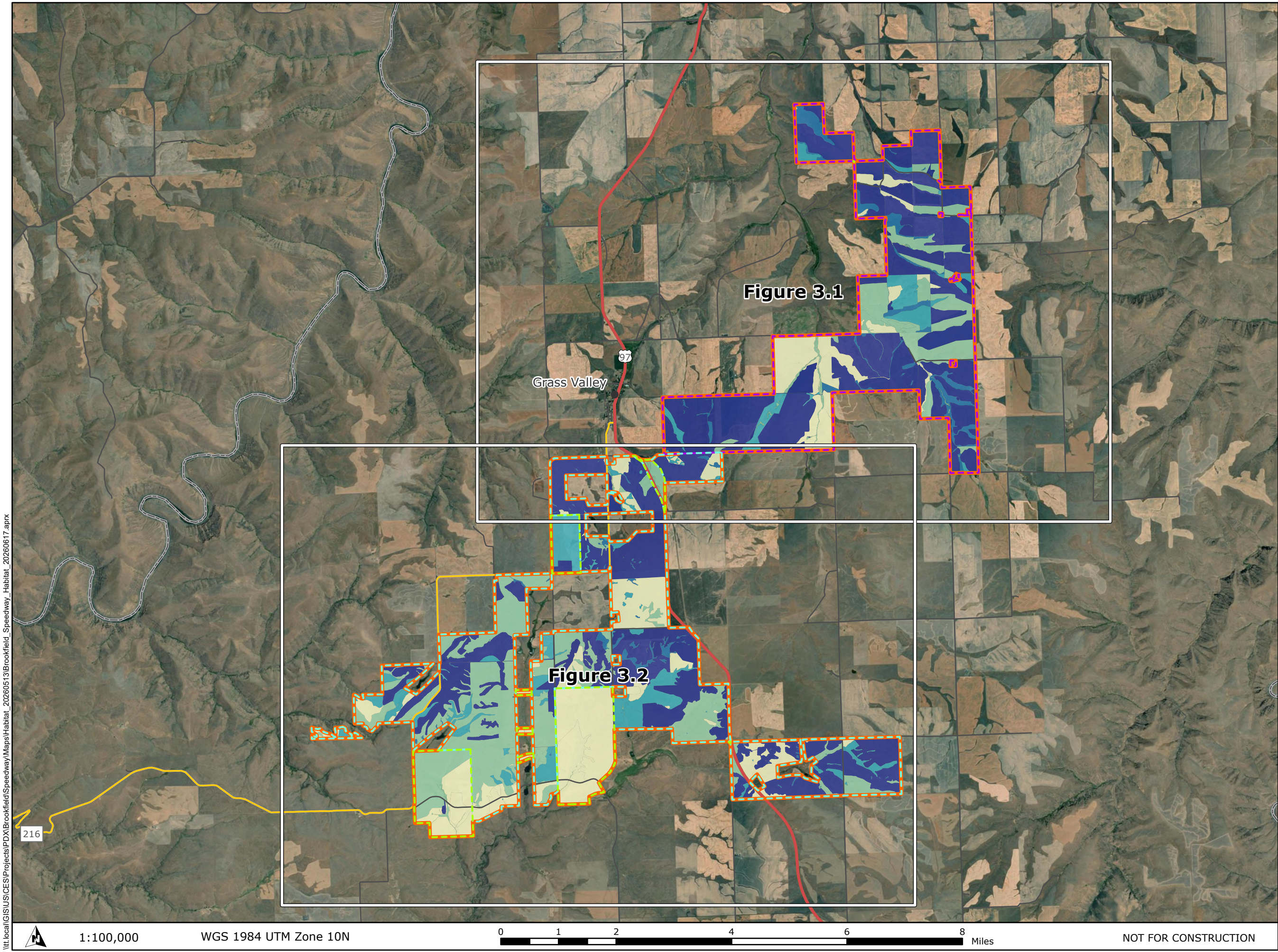
Figure 2
Big Game Winter Range
and Priority Wildlife
Connectivity Areas

SHERMAN COUNTY, OR

- Habitat and Wildlife Survey Area
- City/Town
- County Boundary
- Mule Deer Winter Range (ODFW 2013)
- Elk Winter Range (ODFW 2013)
- Priority Wildlife Connectivity Areas (ODFW 2023)**
 - Region
 - Connector



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Speedway Energy

Figure 3
Habitat Category
Index Map

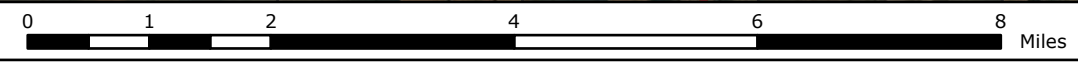
SHERMAN COUNTY, OR

- Map Grid
- Habitat and Wildlife Survey Area
- 2026 Survey Area
- 2025 Survey Area
- 2024 Survey Area
- City/Town
- County Boundary
- US Highway
- State Highway
- Local Roads
- Habitat Category
 - 2
 - 3
 - 4
 - 5
 - 6



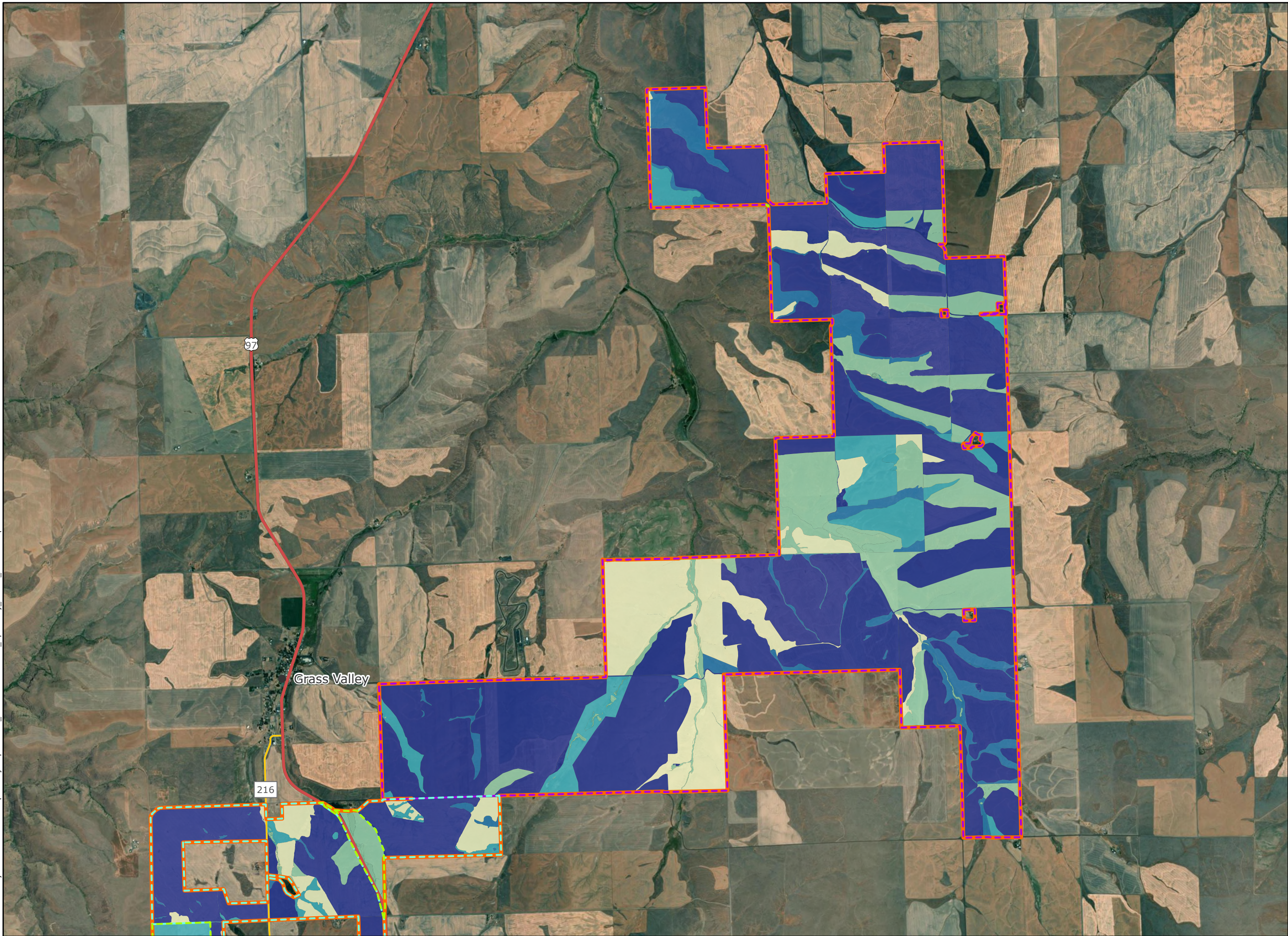
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Speedway Energy

**Figure 3.1
Habitat Category
Detail Map**

SHERMAN COUNTY, OR

- Habitat and Wildlife Survey Area
 - 2026 Survey Area
 - 2025 Survey Area
 - 2024 Survey Area
 - City/Town
 - US Highway
 - State Highway
- Habitat Category
- 2
 - 3
 - 4
 - 5
 - 6



Reference Map



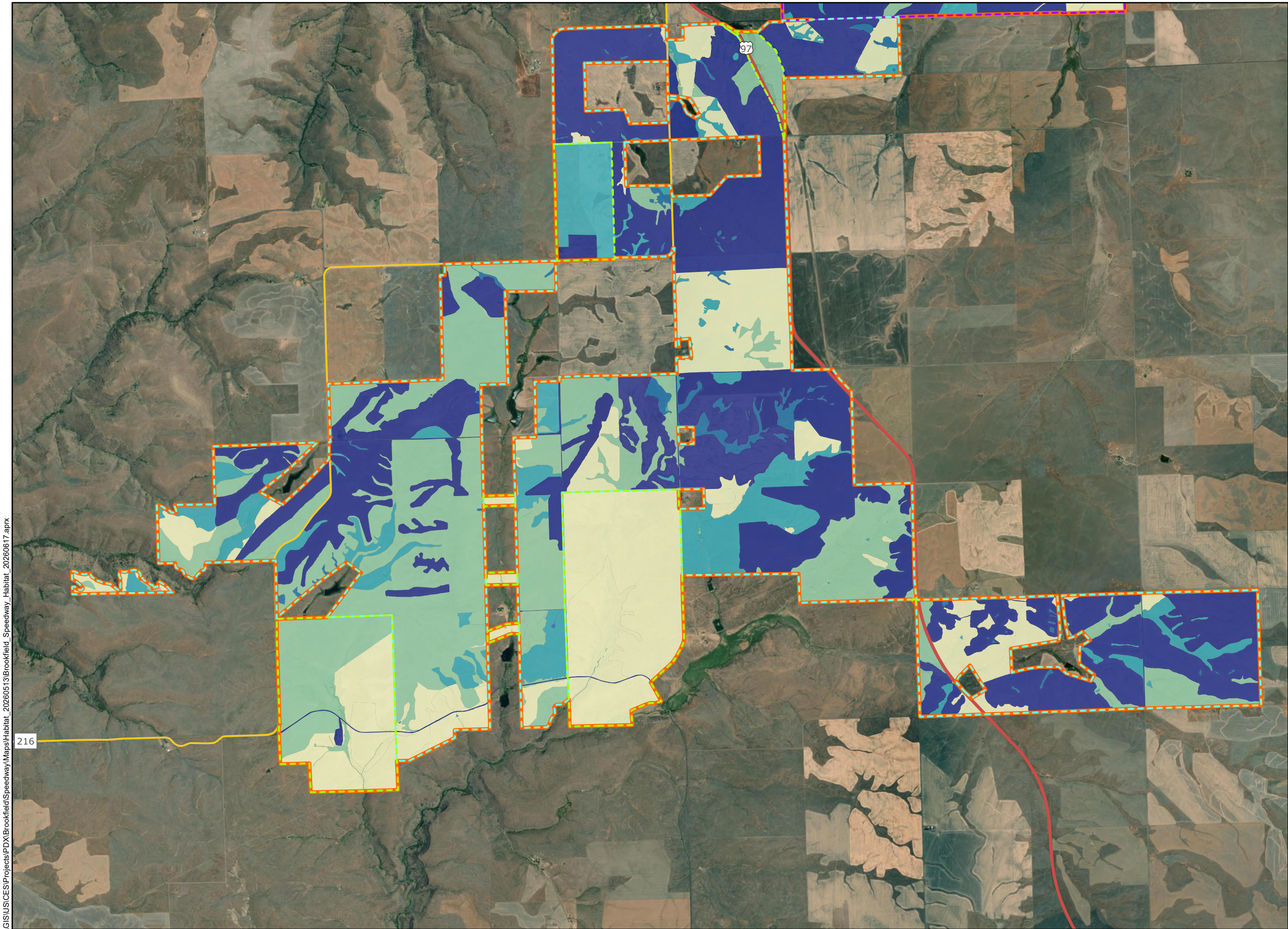
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Speedway Energy

**Figure 3.2
Habitat Category
Detail Map**

SHERMAN COUNTY, OR

- Habitat and Wildlife Survey Area
- 2026 Survey Area
- 2025 Survey Area
- 2024 Survey Area
- US Highway
- State Highway
- Habitat Category**
 - 2
 - 3
 - 4
 - 5
 - 6

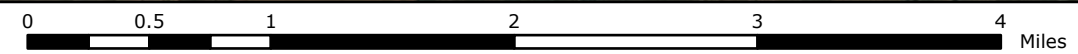


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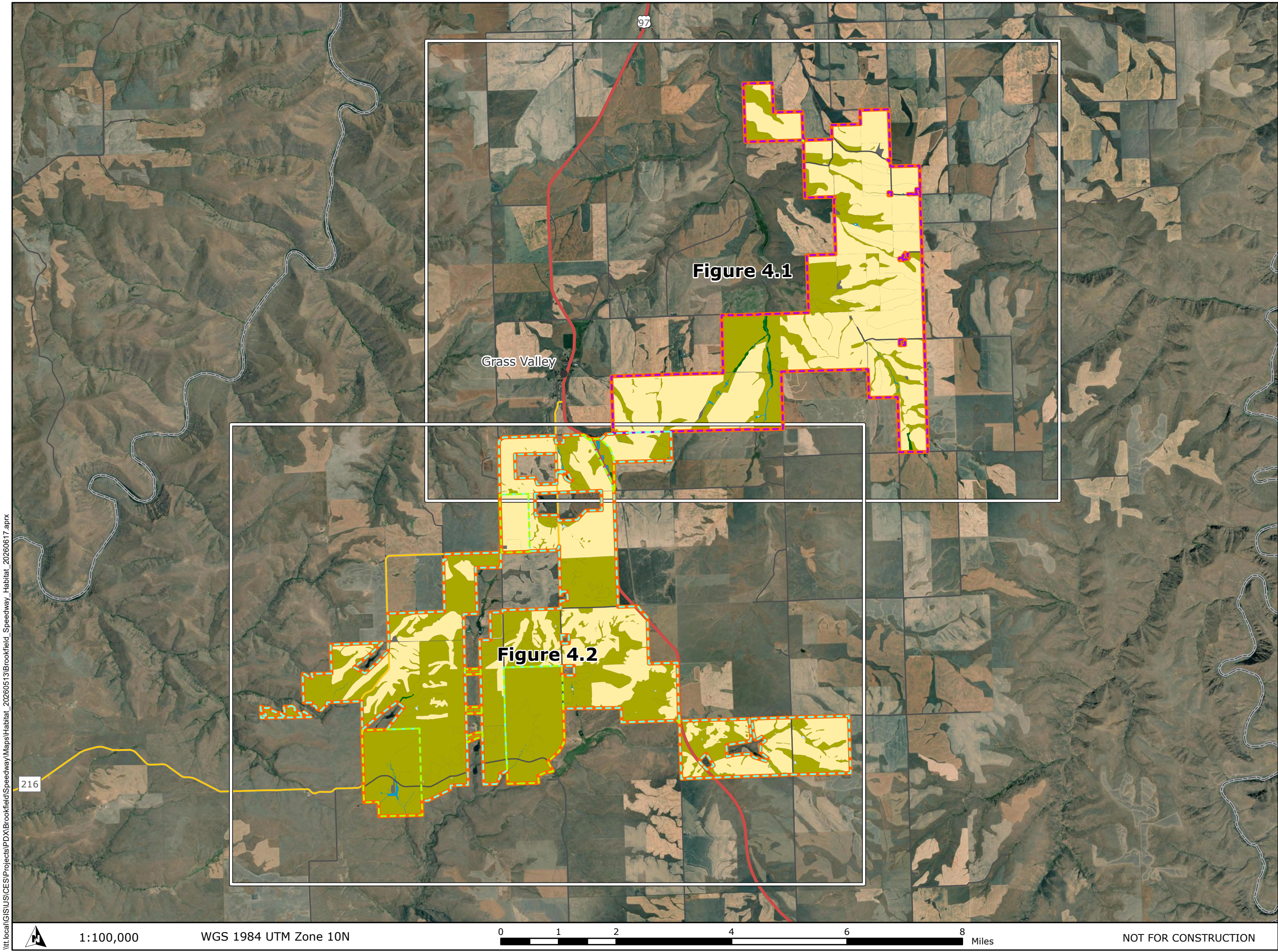
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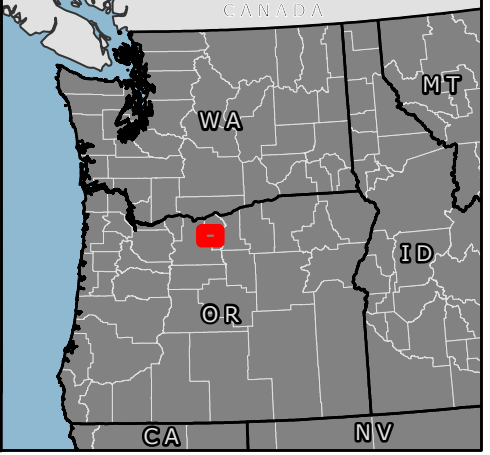
Speedway Energy

**Figure 4
Habitat Type
Index Map**

SHERMAN COUNTY, OR

- Map Grid
 - Habitat and Wildlife Survey Area
 - 2026 Survey Area
 - 2025 Survey Area
 - 2024 Survey Area
 - City/Town
 - County Boundary
 - US Highway
 - State Highway
 - Local Roads
 - Habitat Type
 - Agriculture, Pasture, and Mixed Environs
 - Open Water -- Lakes, Rivers, Streams
 - Riparian Forest and Natural Shrubland Complexes
 - Upland Grassland, Shrub-steppe and Shrubland
 - Urban and Mixed Environs
 - Wetlands
- TETRA TECH** **Brookfield Renewable N.A.**

Reference Map



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Speedway Energy

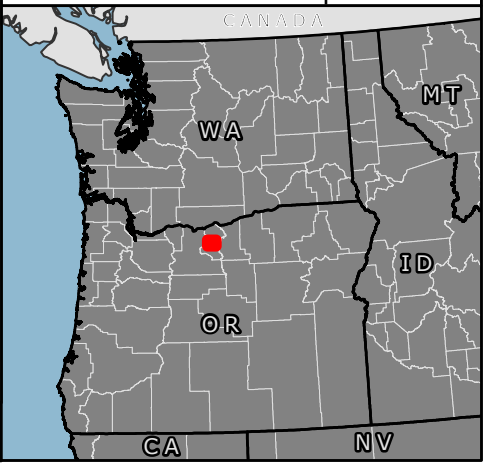
**Figure 4.1
Habitat Type
Detail Map**

SHERMAN COUNTY, OR

- Habitat and Wildlife Survey Area
- 2026 Survey Area
- 2025 Survey Area
- 2024 Survey Area
- City/Town
- US Highway
- State Highway
- Habitat Type
 - Agriculture, Pasture, and Mixed Environs
 - Open Water -- Lakes, Rivers, Streams
 - Riparian Forest and Natural Shrubland Complexes
 - Upland Grassland, Shrub-steppe and Shrubland
 - Urban and Mixed Environs
 - Wetlands



Reference Map



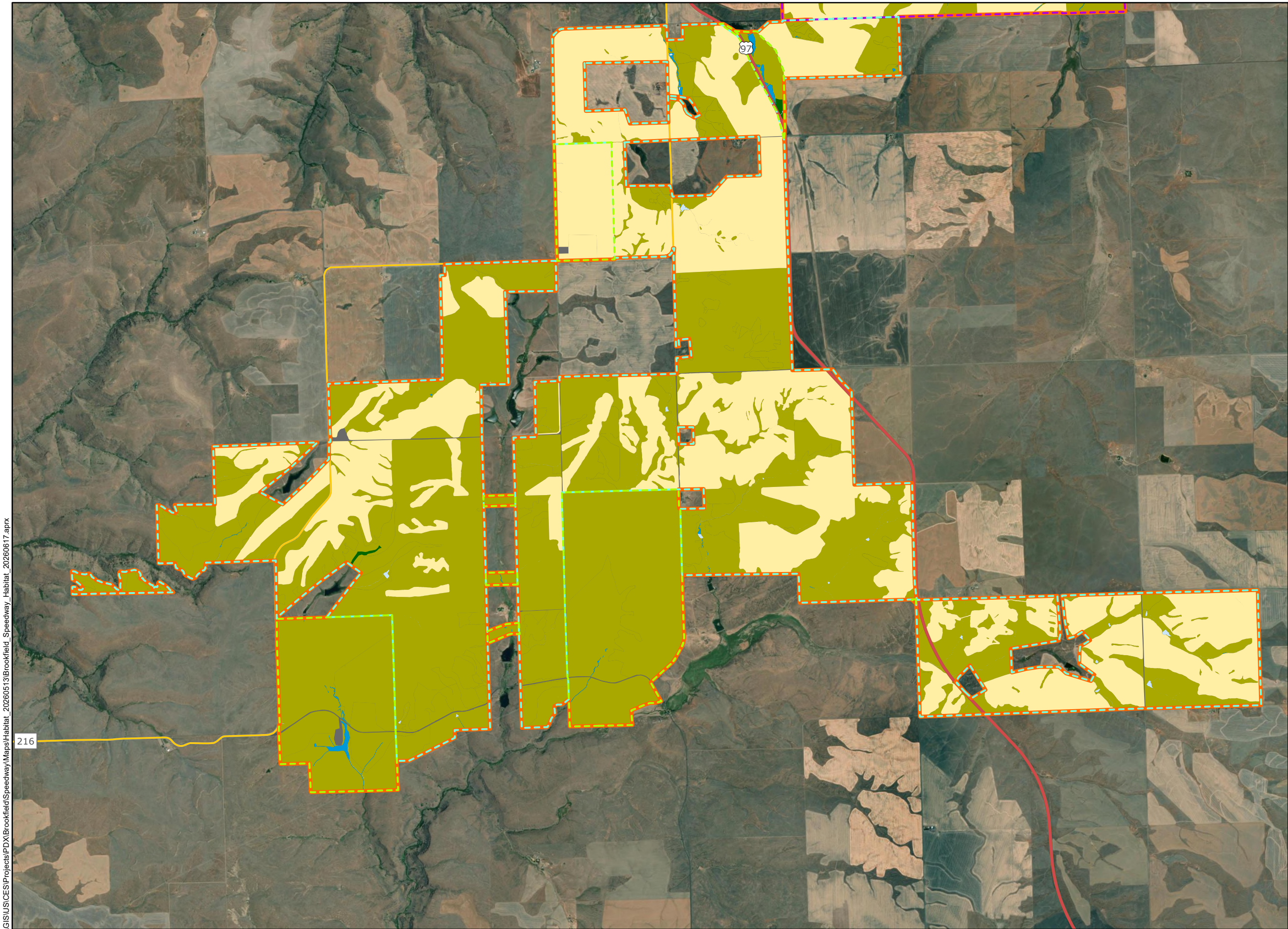
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Speedway Energy

**Figure 4.2
Habitat Type
Detail Map**

SHERMAN COUNTY, OR

- Habitat and Wildlife Survey Area
- 2026 Survey Area
- 2025 Survey Area
- 2024 Survey Area
- US Highway
- State Highway
- Habitat Type**
 - Agriculture, Pasture, and Mixed Environs
 - Open Water -- Lakes, Rivers, Streams
 - Riparian Forest and Natural Shrubland Complexes
 - Upland Grassland, Shrub-steppe and Shrubland
 - Urban and Mixed Environs
 - Wetlands

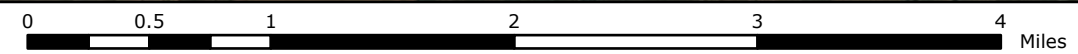


Reference Map



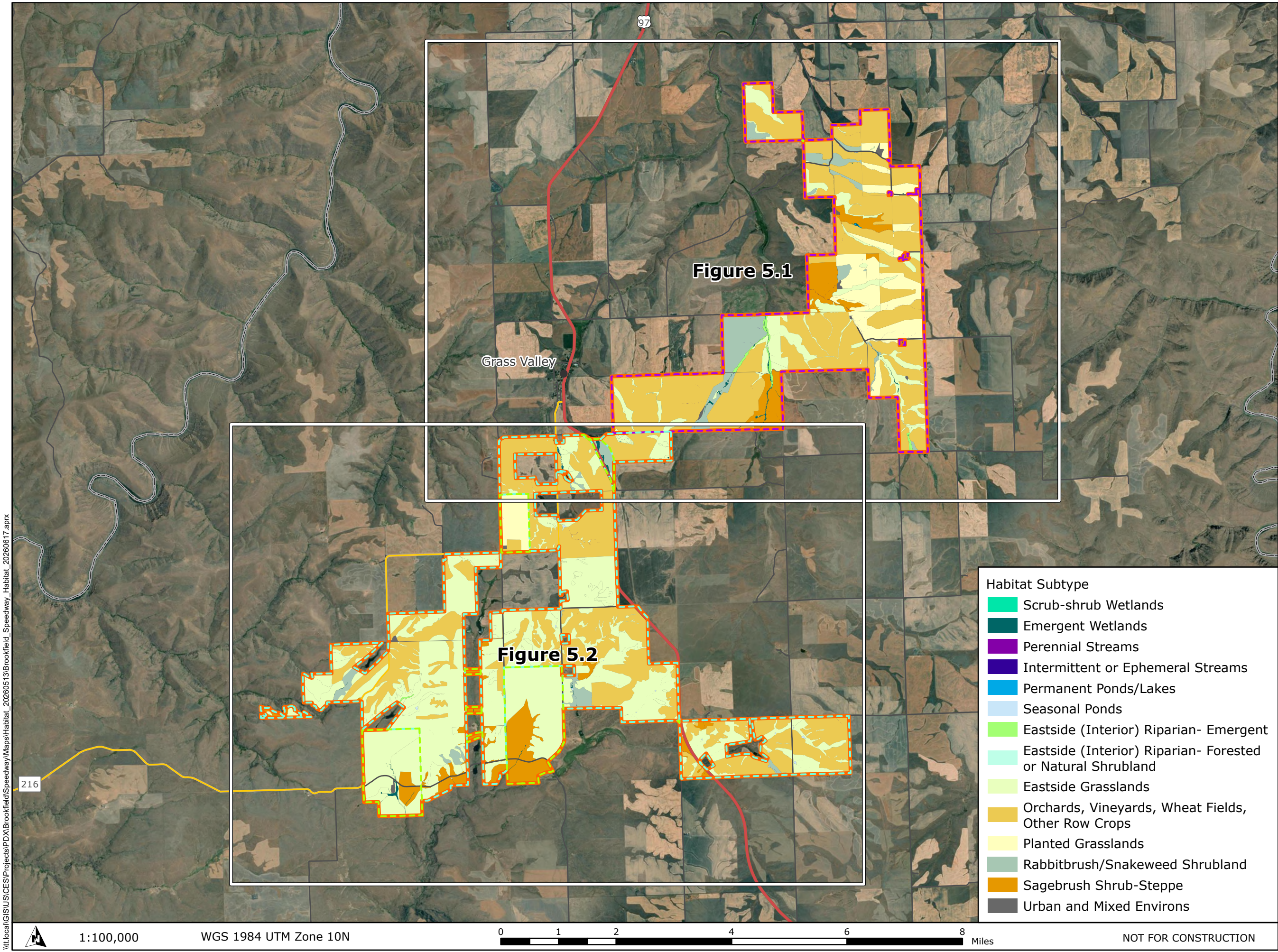
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Speedway Energy

Figure 5
Habitat Subtype
Index Map

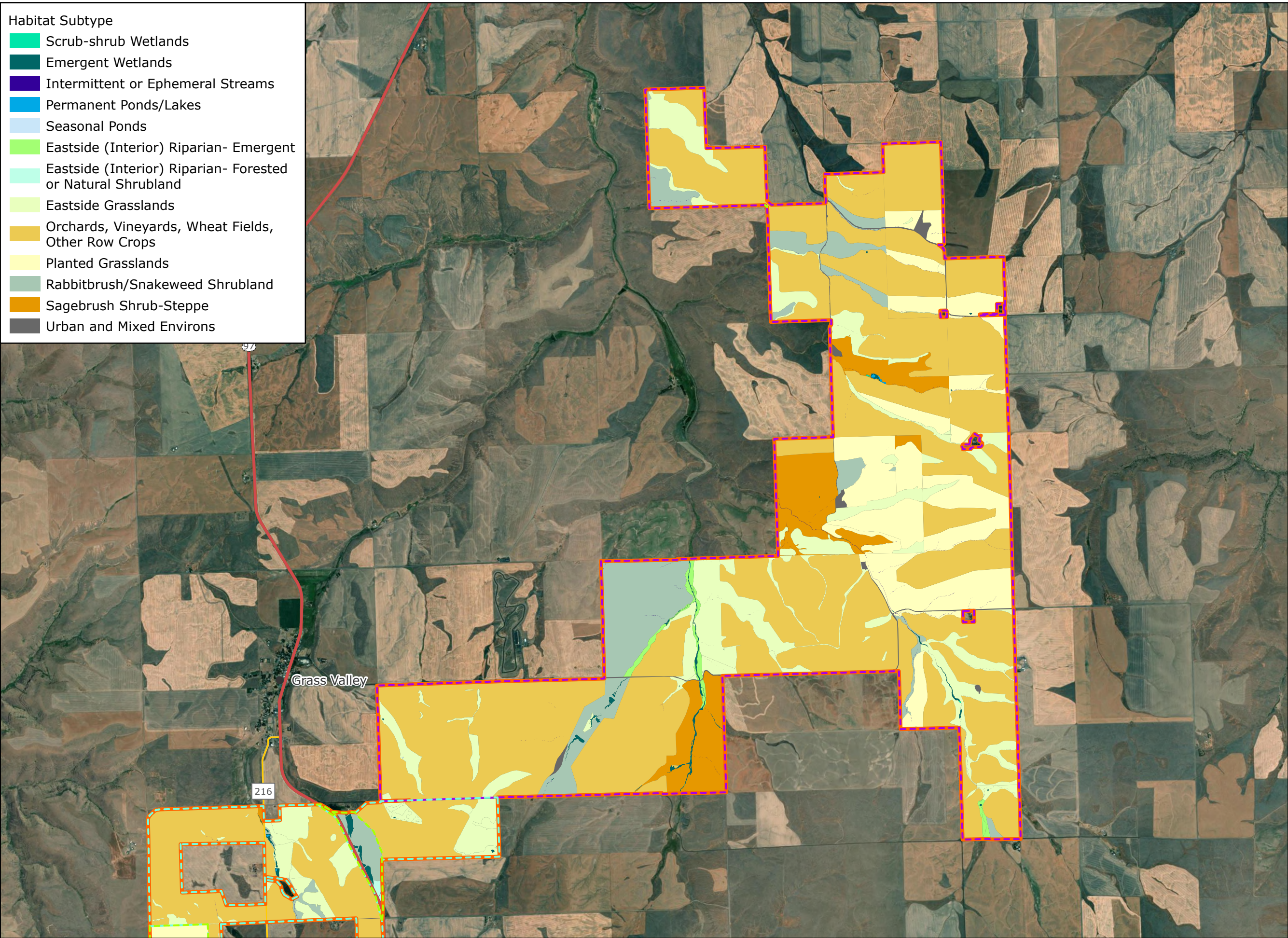
SHERMAN COUNTY, OR

- Map Grid
- Habitat and Wildlife Survey Area
- 2026 Survey Area
- 2025 Survey Area
- 2024 Survey Area
- City/Town
- County Boundary
- US Highway
- State Highway
- Local Roads

- Habitat Subtype**
- Scrub-shrub Wetlands
 - Emergent Wetlands
 - Perennial Streams
 - Intermittent or Ephemeral Streams
 - Permanent Ponds/Lakes
 - Seasonal Ponds
 - Eastside (Interior) Riparian- Emergent
 - Eastside (Interior) Riparian- Forested or Natural Shrubland
 - Eastside Grasslands
 - Orchards, Vineyards, Wheat Fields, Other Row Crops
 - Planted Grasslands
 - Rabbitbrush/Snakeweed Shrubland
 - Sagebrush Shrub-Steppe
 - Urban and Mixed Environs



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- Habitat Subtype
- Scrub-shrub Wetlands
 - Emergent Wetlands
 - Intermittent or Ephemeral Streams
 - Permanent Ponds/Lakes
 - Seasonal Ponds
 - Eastside (Interior) Riparian- Emergent
 - Eastside (Interior) Riparian- Forested or Natural Shrubland
 - Eastside Grasslands
 - Orchards, Vineyards, Wheat Fields, Other Row Crops
 - Planted Grasslands
 - Rabbitbrush/Snakeweed Shrubland
 - Sagebrush Shrub-Steppe
 - Urban and Mixed Environs

Speedway Energy

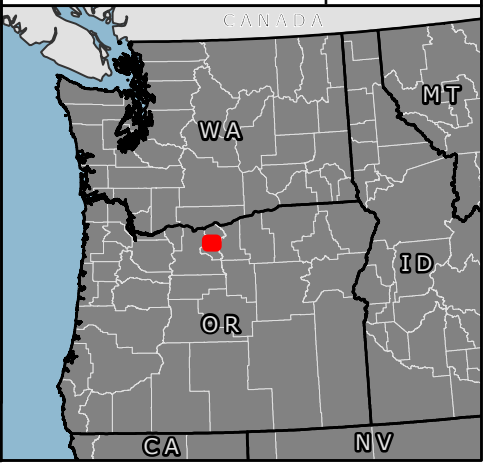
**Figure 5.1
Habitat Subtype
Detail Map**

SHERMAN COUNTY, OR

- Habitat and Wildlife Survey Area
- 2026 Survey Area
- 2025 Survey Area
- 2024 Survey Area
- City/Town
- US Highway
- State Highway

TETRA TECH **Brookfield**
Renewable N.A.

Reference Map



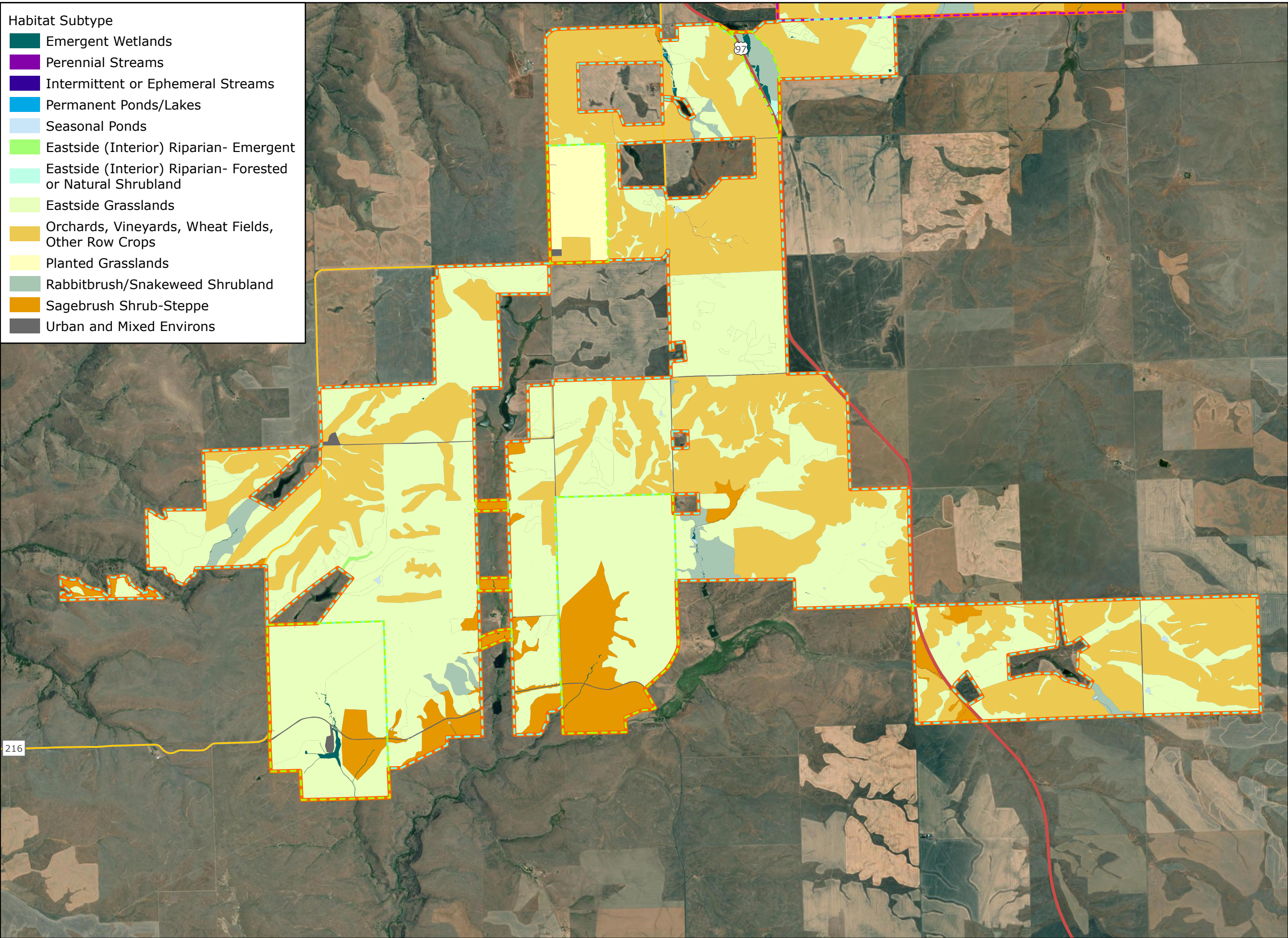
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- Habitat Subtype**
- Emergent Wetlands
 - Perennial Streams
 - Intermittent or Ephemeral Streams
 - Permanent Ponds/Lakes
 - Seasonal Ponds
 - Eastside (Interior) Riparian- Emergent
 - Eastside (Interior) Riparian- Forested or Natural Shrubland
 - Eastside Grasslands
 - Orchards, Vineyards, Wheat Fields, Other Row Crops
 - Planted Grasslands
 - Rabbitbrush/Snakeweed Shrubland
 - Sagebrush Shrub-Steppe
 - Urban and Mixed Environs

Speedway Energy

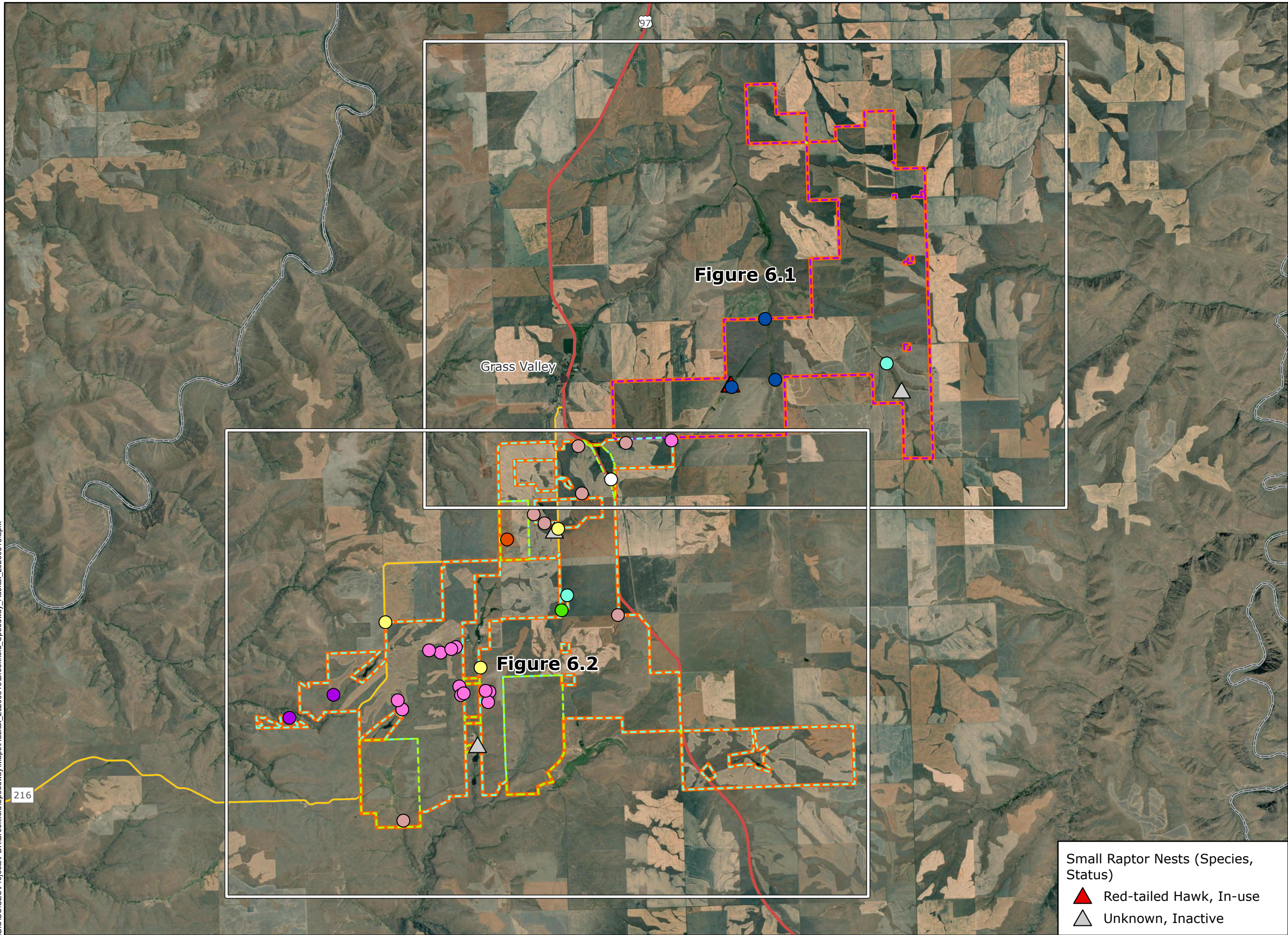
**Figure 5.2
Habitat Subtype
Detail Map**

SHERMAN COUNTY, OR

- Habitat and Wildlife Survey Area
- 2026 Survey Area
- 2025 Survey Area
- 2024 Survey Area
- US Highway
- State Highway



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Speedway Energy

Figure 6 Special Status Species Index Map

SHERMAN COUNTY, OR

- Map Grid
- Habitat and Wildlife Survey Area
- 2026 Survey Area
- 2025 Survey Area
- 2024 Survey Area
- City/Town
- County Boundary
- US Highway
- State Highway

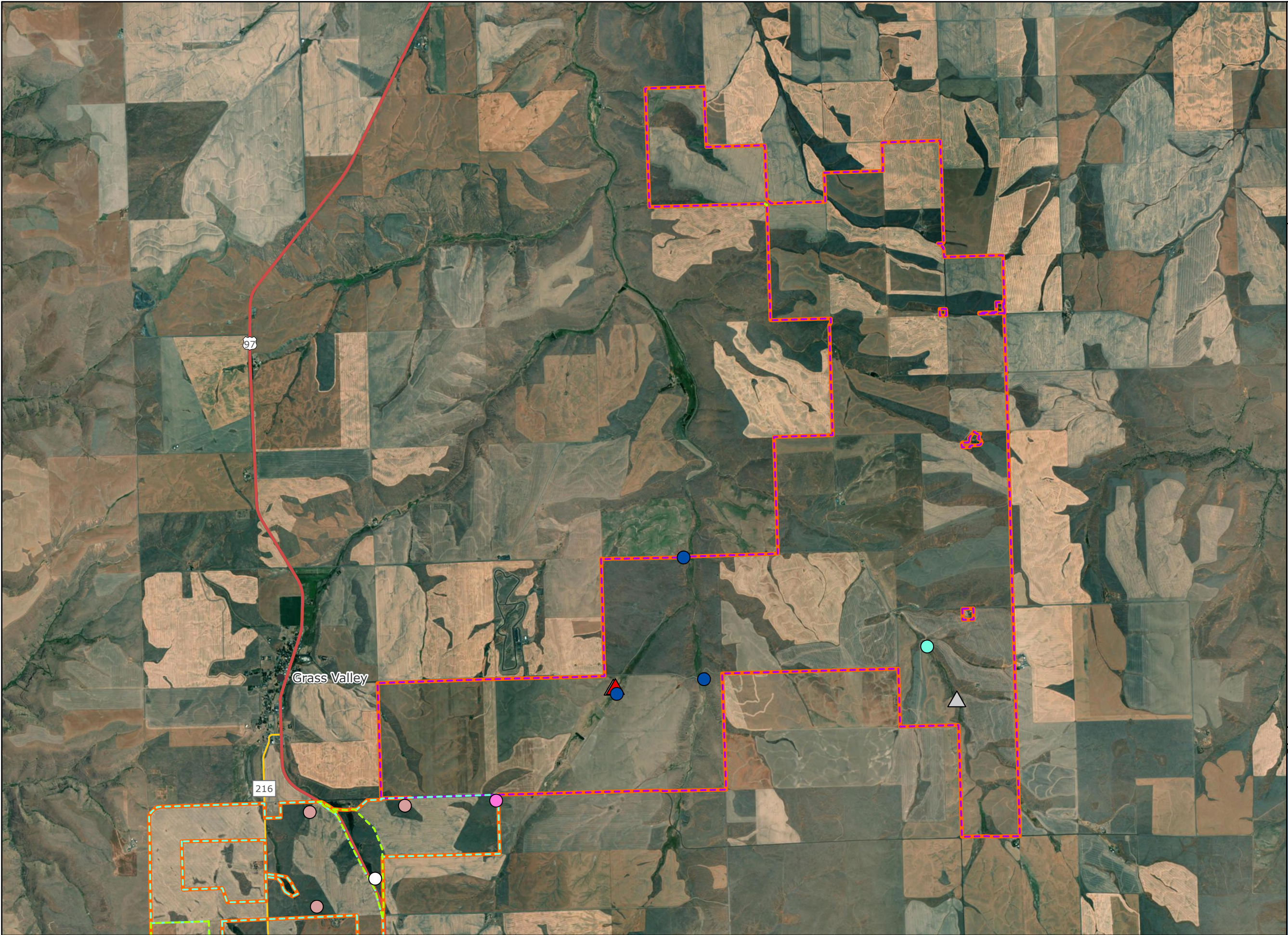
- Observed Species
- Bald Eagle
 - Brewer's Sparrow
 - Grasshopper Sparrow
 - Common Nighthawk
 - Loggerhead Shrike
 - Monarch Butterfly
 - Northern Harrier
 - Swainson's Hawk
 - Jackrabbit*

*Identified by scat only



- Small Raptor Nests (Species, Status)
- Red-tailed Hawk, In-use
 - Unknown, Inactive

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Speedway Energy

**Figure 6.1
Special Status Species
Detail Map**

SHERMAN COUNTY, OR

- Habitat and Wildlife Survey Area
- 2026 Survey Area
- 2025 Survey Area
- 2024 Survey Area
- City/Town
- US Highway
- State Highway

Small Raptor Nests (Species, Status)

- Red-tailed Hawk, In-use
- Unknown, Inactive

Observed Species

- Bald Eagle
- Grasshopper Sparrow
- Loggerhead Shrike
- Northern Harrier
- Jackrabbit*

**Identified by scat only*

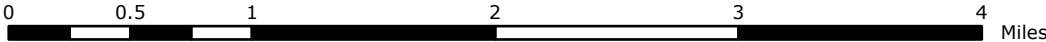


Reference Map



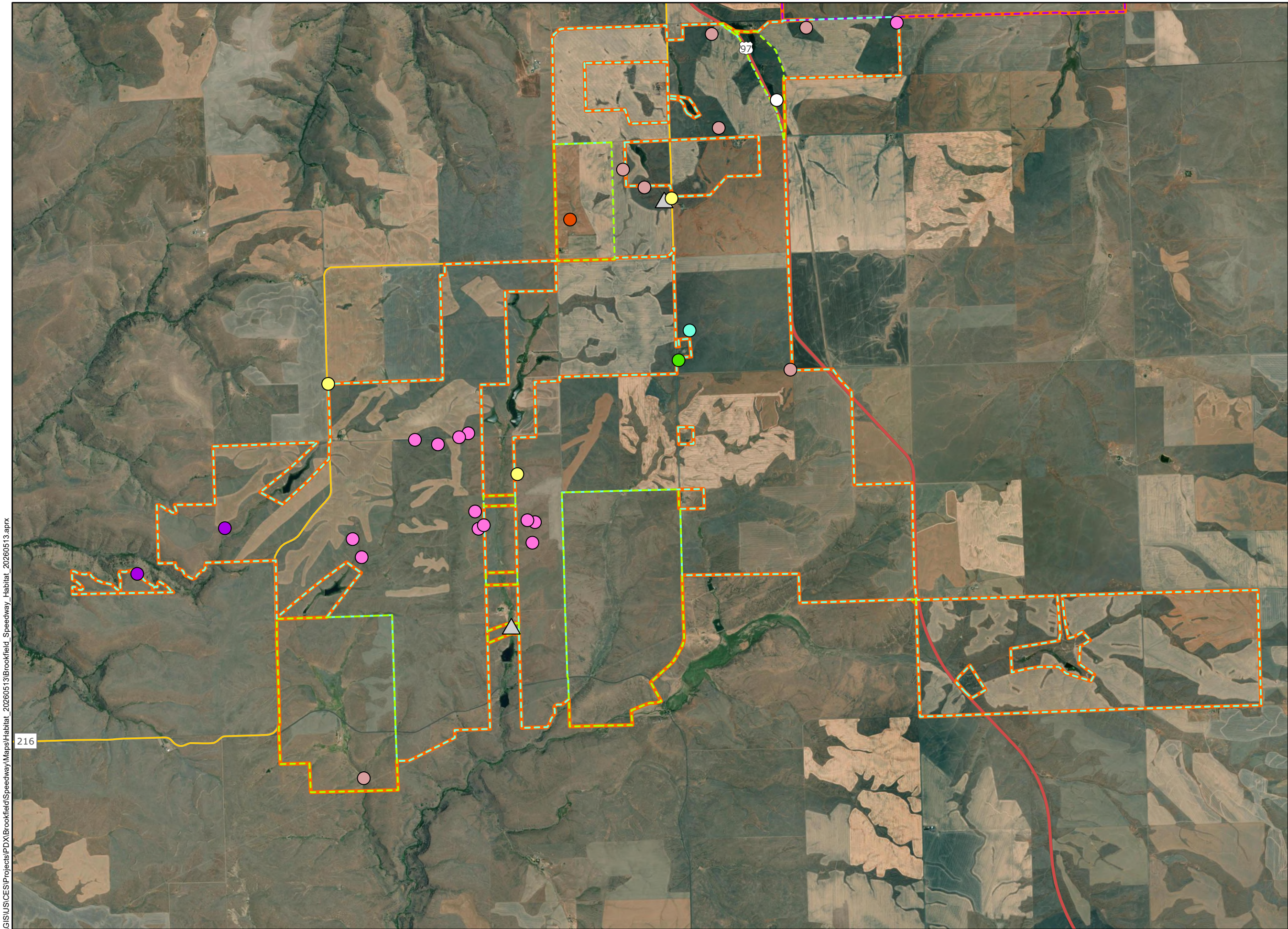
1:50,000

WGS 1984 UTM Zone 10N



NOT FOR CONSTRUCTION

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Speedway Energy

Figure 6.2
Special Status Species
Detail Map

SHERMAN COUNTY, OR

- Habitat and Wildlife Survey Area
- 2026 Survey Area
- 2025 Survey Area
- 2024 Survey Area
- US Highway
- State Highway

Small Raptor Nests (Species, Status)

- Unknown, Inactive

Observed Species

- Bald Eagle
- Brewer's Sparrow
- Grasshopper Sparrow
- Common Nighthawk
- Monarch Butterfly
- Northern Harrier
- Swainson's Hawk
- Jackrabbit*

**Identified by scat only*

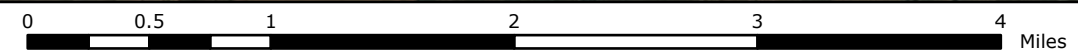


Reference Map



1:50,000

WGS 1984 UTM Zone 10N



NOT FOR CONSTRUCTION

Attachment 1. Oregon Habitat Categorization Datasheet

Oregon Habitat Categorization Datasheet

Data Sheet ID #: _____

Project: _____ County: _____ Date: _____ Surveyor(s): _____

Habitat Category (circle one) 1 / 2 / 3 / 4 / 5 / 6**Habitat Type & Subtype** (choose one)

(*no subtype, select all that apply)

Open Water (Lakes, Rivers, Streams)	Wetlands	Upland Grassland, Shrub-Steppe, and Shrubland	Agriculture, Pasture, and Mixed Environs	Cliffs, Caves and Talus*
☐ Seasonal Ponds	☐ Emergent	☐ Eastside Grasslands	☐ Agriculture (orchards, vineyards, wheat fields, other row crops)	☐ Cliff
☐ Permanent Ponds/Lakes	☐ Scrub-Shrub	☐ Sagebrush Shrub-steppe	☐ Irrigated Pastures and Hay Meadows	☐ Cave
☐ Intermittent or Ephemeral Streams	☐ Forested	☐ Rabbitbrush/snakeweed shrubland	☐ Planted Grasslands	☐ Talus Slope
☐ Perennial Streams				☐ _____ ☐ _____

Riparian- Forest, Natural Shrubland, or Emergent Complexes	Urban and Mixed Environs*
☐ Eastside (Interior) Riparian – Forested or Natural Shrubland ☐ Eastside (Interior) Riparian - Emergent	All the same subtype (tick box to describe features present): ☐ Paved Road ☐ Industrial ☐ Residential

Datasheet / Locations Description: _____**Additional Notes:** _____**Overall Habitat Community** (Total cover amongst all strata, can equal over 100%)

% Absolute Canopy Closure: Trees: _____ Shrubs: _____ Grasses + Forbs: _____

% Bare Ground: _____ % Duff: _____ Cryptobiotic Crust: ☐ Yes ☐ No**Species Composition** (Mark natives with *, noxious weeds with **)Dominant $\geq 20\%$, Subdominant 10-20% of stratum cover**TREES**

Dominant: _____

Subdominant: _____

Other Noteworthy Species: _____

Subcanopy Layers: _____ % of Stratum that is Native: _____ Max Vegetation Height (ft): _____

Avg. DBH (in.): _____ Stumps Present? ☐ Yes ☐ No Snags Present? ☐ Yes ☐ No Abundance ____/ac

Snag Stage (circle one): 1 / 2 / 3 / 4 / 5 Forest Phase (circle one): GF / SHR / OSP / CSPS / LGS AW / OGDD

Notes: _____

SHRUBS

Dominant: _____

Subdominant: _____

Other noteworthy species: _____

Subcanopy Layers: _____ % of Stratum that is Native: _____ Max Vegetation Height (ft): _____

Notes: _____

GRASSES + FORBS

Dominant: _____

Subdominant: _____

Other noteworthy species: _____

Subcanopy Layers: _____ % of Stratum that is Native: _____ Max Vegetation Height (ft): _____

Notes: _____

Other Descriptions

Check all that apply within polygon(s). For disturbances outside but in view of the polygon, list the estimated distance in feet from polygon edge.

Disturbance		Sensitive Species/Habitat	Unique Features	Anticipated Recovery Timeline*
☐ None	☐ Row Crop	☐ None	☐ None	☐ 0-5 years
☐ Wind Facility	☐ Farm	☐ Bald Eagle	☐ Cave	☐ 5-30 years
☐ Solar Facility	☐ Corral	☐ Golden Eagle	☐ Mine	☐ >30 years
☐ Railroad	☐ Pasture	☐ Raptor Nests	☐ Cliff / Rimrock	Recovery Rationale: ☐ Mature Sagebrush ☐ Mature Riparian ☐ _____ ☐ _____ ☐ _____ ☐ _____
☐ Dirt Road	☐ Grazing	☐ _____	☐ Rock Outcrop	
☐ Gravel Road	☐ Erosion	☐ _____	☐ Abandoned Building	
☐ Paved Road	☐ Construction	☐ _____	☐ Large Snag	
☐ Highway	☐ Invasive Plants	☐ _____	☐ Wood Bridge	
☐ Industrial	☐ Logging Clearcut	☐ _____	☐ Bald	
☐ Residence	☐ Thinning	☐ _____	☐ Bluff	☐ _____
☐ Campground	☐ Quarry	☐ _____	☐ Wetlands / Waters	☐ _____
☐ _____	☐ _____	☐ _____	☐ _____	

* Anticipated recovery timeline should be estimated during surveys for the purposes of determining the need for mitigation to compensate for temporary impacts to habitat that would be long-term or difficult to restore. For example, rabbitbrush typically recovers within 5 years, sagebrush typically recovers in 5-30 years, disturbed annual grassland typically recovers in 2-5 years, and high quality native grassland typically recovers in 3 or greater than 5 years depending on the site (e.g., existing disturbance, precipitation, and quality of planting/seeding). See Brown 1985 for forest recovery/phase timelines.

Additional Notes / Categorization Rationale:

Attachment 2. Habitat Types and Subtypes Potentially Occurring within the Habitat and Wildlife Survey Area

Habitat Type ¹	Habitat Sub-type ¹	Category 1 ²	Category 2 ²	Category 3 ²	Category 4 ²	Category 5 ²	Category 6 ²
THE FIRST ROW IS AN OVERLAY THAT AUTOMATICALLY ASSIGNS CATEGORIES, BASED ON SPECIES PRESENCE, TO ONE OR MORE OF THE HABITAT TYPES DESCRIBED BELOW							
All Habitat Types, excluding agricultural areas.	All Habitat Sub-types excluding agricultural areas.		ODFW (2013) Big Game Winter Range.				
Open Water – Lakes, Rivers, Streams	Permanent Ponds/Lakes Open water areas, including natural lakes, reservoirs, stock ponds, beaver ponds		Natural lakes or beaver ponds with high-quality habitat.	Most other open water areas with lower-quality habitat (for example, some habitat requisites missing or bullfrogs abundant).	Highly degraded open water area, dominated by non-native vegetation or no vegetation around margins (for example, highly degraded stock pond).		
	Seasonal Ponds Open water areas that contain water part of the year		Seasonal ponds with high quality, mostly native vegetation.	Seasonal ponds with lower-quality habitat that is still dominated by native plant species.	Highly degraded, with a higher proportion of non-native vegetation or no vegetation around margins (for example, a seasonal stock pond).	Habitat almost completely dominated by non-native plant species or otherwise highly degraded.	
	Perennial Streams Mapped by USGS having permanent (year-round) flow		Fish-bearing natural stream channels that support native, migratory fish based on StreamNet data or input from ODFW fish biologists; and provides good spawning (gravel beds present, non-embedded) and/or rearing habitat, with native emergent, shrub, or forested riparian margins.	Fish-bearing natural stream channels that do not support native, migratory fish based on StreamNet data or input from ODFW fish biologists; and provide marginal spawning (gravel present in pockets/30% embedded) and/or rearing habitat; or non-fish-bearing natural stream channels which drain into fish-bearing streams based on StreamNet data.	Non-fish-bearing natural stream channels that do not directly drain into fish-bearing streams.		
	Intermittent or Ephemeral Streams mapped by USGS as intermittent		Fish-bearing natural stream channels that support native, migratory fish based on StreamNet data or input from ODFW fish biologists; and provides good spawning (gravel beds present, non-embedded) and/or rearing habitat, with native emergent, shrub, or forested riparian margins.	Fish-bearing natural stream channels that do not support native, migratory fish based on StreamNet data or input from ODFW fish biologists; and provide marginal spawning (gravel present in pockets/30% embedded) and/or rearing habitat; or non-fish-bearing natural stream channels which drain into fish-bearing streams based on StreamNet data.	Non-fish-bearing natural stream channels that do not directly drain into fish-bearing streams.	Non-fish-bearing ephemeral streams or excavated channels which do not have high restoration potential; not important habitat.	
Wetlands	Emergent Wetlands Emergent wetlands with herbaceous vegetation	Any bog or fen.	High quality habitat, dominated by native species	Mixture of native and non-native plant species and low to moderate disturbance	Mixture of native and non-native plant species and moderate to high disturbance	Farmed or previously filled wetlands; highly disturbed, dominated by non-native plant species.	

Habitat Type ¹	Habitat Sub-type ¹	Category 1 ²	Category 2 ²	Category 3 ²	Category 4 ²	Category 5 ²	Category 6 ²
	Scrub-Shrub Wetlands Wetlands with woody vegetation less than 20 feet tall	Any bog or fen.	High quality habitat, dominated by native plant species;	Mixture of native and non-native plant species and low to moderate disturbance		Farmed or previously filled wetlands; highly disturbed, dominated by non-native plant species.	
	Forested Wetlands Forests (defined as areas with a minimum of 40% canopy closure > 20 feet tall), dominated by wetland indicator species	Any bog or fen.	Exceptional habitat; well-buffered, with few or no non-native plant species, relatively undisturbed surroundings, or part of a large wetland complex, old-growth, or large sawtimber stage	Mixture of native and non-native plant species at sapling, pole, sawtimber stage			
Riparian- Forest, Natural Shrubland, or Emergent Complexes	Eastside (Interior) Riparian – Forested or Natural Shrubland		High quality, diverse riparian areas that are not degraded	Typical mid-seral riparian, provides wildlife habitat	Provides marginal habitat; somewhat degraded.	Highly degraded; dominated by non-native plant species.	
	Eastside (Interior) Riparian - Emergent		High quality, riparian areas that are not degraded and are dominated by native species	Riparian areas that are moderately degraded but provide wildlife habitat	Provides marginal habitat; moderately degraded with a higher proportion of non-native species.	Highly degraded; dominated by non-native plant species.	
Upland Grassland, Shrub-steppe and Shrubland	Eastside Grasslands Grassland areas with few shrubs (<10% shrub cover) (not irrigated or cultivated/planted)		Undisturbed habitat dominated by native species (i.e., greater than 75% ground cover is native), or moderately disturbed habitat (i.e., between 50 to 75% ground cover is native) that contains a sagebrush component	Moderately disturbed habitat with a mix of natives and non-natives (i.e., between 50 to 75% ground cover is native), or highly disturbed habitat (i.e., between 15 to 50% ground cover is native) that contains a sagebrush component	Highly disturbed habitat with a high percentage of non-native plant species (i.e., between 15 to 50% ground cover is native), or very highly disturbed habitats (i.e., less than 15% ground cover is native) that contain a sagebrush component	Very highly disturbed habitats with a high percentage of non-native plant species (i.e., less than 15% ground cover is native), but which do not contain a sagebrush component	
	Rabbitbrush / Snakeweed Shrubland Grassland and shrubland mosaic, with a dominate shrub mix of rabbitbrush and snakeweed providing at least 10% ground cover, and not containing a sagebrush component		Undisturbed habitat dominated by native species (i.e., greater than 75% ground cover is native) with a dominant rabbitbrush and/or snakeweed component.	Moderately disturbed habitat with a mix of natives and non-natives (i.e., between 50 to 75% ground cover is native), with a dominant rabbitbrush and/or snakeweed component.	Highly disturbed habitat with a high percentage of non-native plant species (i.e., between 15 to 50% ground cover is native), with a dominant rabbitbrush and/or snakeweed component.	Very highly disturbed habitats with a high percentage of non-native plant species (i.e., less than 15% ground cover is native), with a dominant rabbitbrush and/or snakeweed component.	
	Sagebrush Shrub-Steppe Grassland and shrubland mosaic, containing a sagebrush component		High degree of cover; contains native shrubs, sagebrush and native grasses; good structure/forage for wildlife. Understory dominated by native species. More diversity than Category 3 habitat.	Habitat with sagebrush that is limited within the area (e.g., relatively undisturbed habitat); high degree of cover; moderate cover by weeds, moderate structure/forage for wildlife.	Important wildlife habitat that contains sagebrush and is moderately to heavily degraded and weedy habitat.	Very low quality dominated by non-native species but with a sagebrush component; with high restoration potential.	
Agriculture, Pasture, and Mixed Environs	Planted Grasslands			Croplands planted to grassland with characteristics necessary to potentially provide habitat	Croplands planted to grassland that lack later seral stage vegetative communities or are	Croplands planted to grassland that lack later seral stage vegetative communities and	

Habitat Type ¹	Habitat Sub-type ¹	Category 1 ²	Category 2 ²	Category 3 ²	Category 4 ²	Category 5 ²	Category 6 ²
	Grasslands that appear to have been planted, possibly part of the Conservation Reserve Program (CRP)			for sensitive wildlife due to cover and forage quality.	of less importance as wildlife habitat due to management or location.	are highly disturbed or degraded, and have high restoration potential.	
	Orchards, Vineyards, Wheat Fields, Other Row Crops						Active agricultural areas with low potential for restoration.
	Irrigated Pastures and Hay Meadows				Potential habitat for wildlife.		
Cliffs, Caves, and Talus	Cliffs, Caves, and Talus	Sites with bat hibernacula.	Sites with known bat colonies.	Sites without bat colonies.			
Urban and Mixed Environs	Urban and Mixed Environs						All developed areas.
1. Habitat Types and Subtypes adapted from Johnson and O'Neil (2001). 2. Habitat Category descriptions developed based on Oregon Department of Fish and Wildlife's Fish and Wildlife Habitat Mitigation Policy (Oregon Administrative Rule 635-415-0025). "Habitat Category 1" is irreplaceable, essential habitat for a fish or wildlife species, population, or a unique assemblage of species and is limited on either a physiographic province or site-specific basis, depending on the individual species, population or unique assemblage. "Habitat Category 2" is essential habitat for a fish or wildlife species, population, or unique assemblage of species and is limited either on a physiographic province or site-specific basis depending on the individual species, population or unique assemblage. "Habitat Category 3" is essential habitat for fish and wildlife, or important habitat for fish and wildlife that is limited either on a physiographic province or site-specific basis, depending on the individual species or population. "Habitat Category 4" is important habitat for fish and wildlife species. "Habitat Category 5" is habitat for fish and wildlife having high potential to become either essential or important habitat. "Habitat Category 6" is habitat that has low potential to become essential or important habitat for fish and wildlife.							

Attachment 3. Special Status Wildlife Species Potentially Occurring within the Habitat and Wildlife Survey Area

Special Status Wildlife Species Potentially Occurring within the Habitat and Wildlife Survey Area

Common Name	Scientific Name	Federal Status ¹	ODFW Status in Columbia Plateau/Columbia Basin ²
Birds			
bald eagle	<i>Haliaeetus leucocephalus</i>	BGEPA	–
Brewer's sparrow	<i>Spizella breweri breweri</i>	–	S
burrowing owl (Western)	<i>Athene cunicularia hypugaea</i>	SOC, BCC	S
common nighthawk	<i>Chordeiles minor</i>	BCC	S
ferruginous hawk	<i>Buteo regalis</i>	SOC, BCC	S
golden eagle	<i>Aquila chrysaetos</i>	BGEPA	–
grasshopper sparrow	<i>Ammodramus savannarum</i>	BCC	S
loggerhead shrike	<i>Lanius ludovicianus</i>	BCC	SC
long-billed curlew	<i>Numenius americanus</i>	BCC	SC
Lewis's woodpecker	<i>Melanerpes lewis</i>	BCC	SC
northern harrier	<i>Circus cyaneus</i>	BCC	–
sagebrush sparrow ³	<i>Artemisiospiza nevadensis</i>	–	SC
Swainson's hawk	<i>Buteo swainsoni</i>	–	S
Mammals			
pallid bat	<i>Antrozous pallidus</i>	–	S
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	–	SC
hoary bat ³	<i>Lasiurus cinereus</i>	–	S
silver-haired bat ³	<i>Lasionycteris noctivagans</i>	–	S
spotted bat	<i>Euderma maculatum</i>	–	S
white-tailed jackrabbit ⁴	<i>Lepus townsendii</i>	–	S
Reptiles			
California mountain kingsnake	<i>Lampropeltis zonata</i>	SOC	S
northern sagebrush lizard	<i>Sceloporus graciosus graciosus</i>	SOC	S
Invertebrates			

Special Status Wildlife Species Potentially Occurring within the Habitat and Wildlife Survey Area

Common Name	Scientific Name	Federal Status ¹	ODFW Status in Columbia Plateau/Columbia Basin ²
monarch butterfly	<i>Danaus plexippus</i>	PT	–
1. Federal status: SOC=Species of Concern, BCC = Birds of Conservation Concern, BGEPA = Bald and Golden Eagle Protection Act, PT = Proposed Threatened, SOC = Species of Concern. 2. ODFW Status: S = Sensitive, SC = Sensitive Critical 3. Does not occur in Sherman County per ORBIC 2019. All other species have potential to occur within Sherman County according to ORBIC 2019. 4. This species does not have a special status in the Columbia Plateau/Columbia Basin ecoregion, but is included in this table as requested by ODFW because it is a Species of Greatest Conservation Need (ODFW 2026).			

Attachment 4. Select Photographs from 2025 Surveys



Photo 1. Category 2 rabbitbrush shrubland. Date: 6/17/2025. Lat/Long: 45.34384089, -120.7896122.



Photo 2. Category 2 sagebrush shrub-steppe. Date: 6/19/2025. Lat/Long: 45.27611078, -120.8804274.



Photo 3. Category 2 eastside grassland. Date: 6/18/2025. Lat/Long: 45.30702544, -120.782217.



Photo 4. Category 2 eastside grassland with sagebrush component. Date: 6/19/2025. Lat/Long: 45.26471714, -120.7409681.

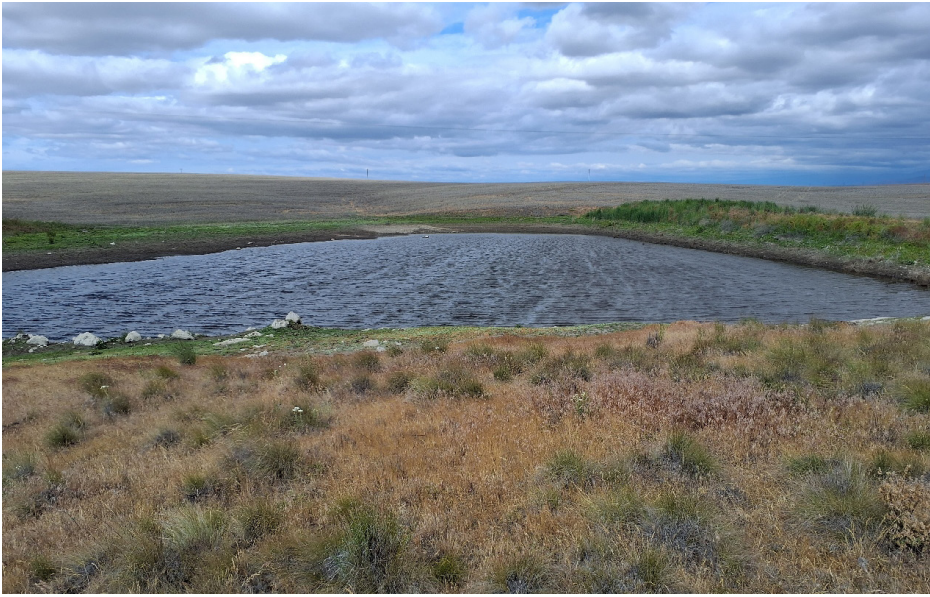


Photo 5. Category 2 emergent wetlands. Date: 6/20/2025. Lat/Long: 45.26768167, -120.70408.



Photo 6. Category 2 emergent wetlands. Date: 6/20/2025. Lat/Long: 45.26768167, -120.70408.



Photo 7. Category 3 sagebrush shrub-steppe. Date: 6/18/2025. Lat/Long: 45.28451271, -120.8166605.



Photo 8. Category 3 sagebrush shrub-steppe. Date: 6/19/2025. Lat/Long: 45.26595284, -120.7464646.



Photo 9. Category 3 rabbitbrush shrubland. Date: 6/18/2025. Lat/Long: 45.3353841, -120.7851728.

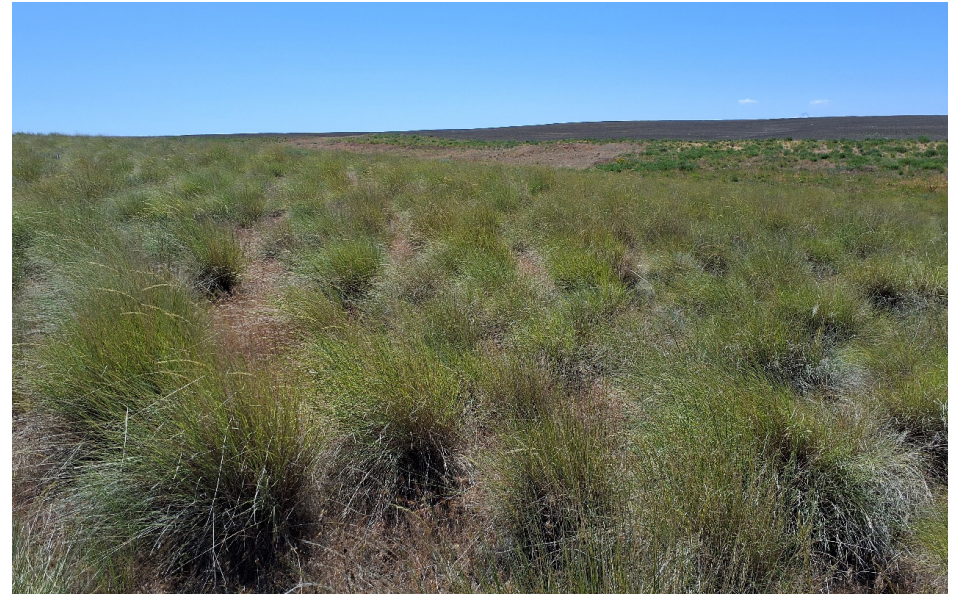


Photo 10. Category 3 eastside grasslands. Date: 6/17/2025. Lat/Long: 45.33892167, -120.7749333.



Photo 11. Category 3 eastside grasslands with sagebrush component. Date: 6/18/2025. Lat/Long: 45.27684, -120.8833567.



Photo 12. Category 3 eastside (interior) riparian. Date: 6/18/2025. Lat/Long: 45.279955, -120.8446267.



Photo 13. Category 3 eastside (interior) riparian ? forested or natural shrubland. Date: 4/14/2026. Lat/Long: 45.33359463, -120.7692738.



Photo 14. Category 4 rabbitbrush shrubland. Date: 6/17/2025. Lat/Long: 45.32398083, -120.7900715.



Photo 15. Category 4 rabbitbrush shrubland. Date: 6/19/2025. Lat/Long: 45.27841223, -120.7809002.



Photo 16. Category 4 eastside grassland. Date: 6/17/2025. Lat/Long: 45.3404757, -120.7769889.



Photo 17. Category 5 eastside grassland. Date: 6/18/2025. Lat/Long: 45.31494356, -120.8099735.



Photo 18. Category 6 urban and mixed environs. Date: 6/18/2025. Lat/Long: 45.29459572, -120.8482516.



Photo 19. Category 6 orchards, vineyards, wheat fields, other row crops. Date: 6/19/2025. Lat/Long: 45.28809225, -120.7659662.



Photo 20. Unknown small, inactive nest in fair condition, approximately 18 meters off the ground. No individuals present. Date: 6/17/2025. Lat/Long: 45.32306083, -120.7903851.



Photo 21. Unknown ungulate scat. Date: 6/19/2025. Lat/Long: 45.27656932, -120.8928226.



Photo 22. Bald eagle observed hunting and soaring low over a pond. Date: 4/21/2026. Lat/Long: 45.33496833, -120.7700483.



Photo 23. Nest of unknown species. Red-tailed hawk seen soaring nearby. Date: 4/14/2026. Lat/Long: 45.27050758, -120.819388.

Attachment 5. Wildlife Species Observed within the Habitat and Wildlife Survey Area

Wildlife Species Observed within the Habitat and Wildlife Survey Area

Common Name	Scientific Name	Identified in 2024 Habitat and Wildlife Survey Area	Identified in 2025 Habitat and Wildlife Survey Area	Identified in 2026 Habitat and Wildlife Survey Area
Birds				
American coot	<i>Fulica americana</i>		X	X
American kestrel	<i>Falco sparverius</i>	X	X	
Bald eagle ¹	<i>Haliaeetus leucocephalus</i>			X
Barn swallow	<i>Hirundo rustica</i>		X	
Black-billed magpie	<i>Pica hudsonia</i>			X
Black vulture	<i>Coragyps atratus</i>		X	
Brewer's blackbird	<i>Euphagus cyanocephalus</i>		X	X
Brewer's sparrow ¹	<i>Spizella breweri</i>		X	
California quail	<i>Callipepla californica</i>	X		
Chukar	<i>Alectoris chukar</i>	X		X
Cinnamon teal	<i>Spatula cyanoptera</i>			X
Common grackle	<i>Quiscalus quiscula</i>	X		
Common nighthawk ¹	<i>Chordeiles minor</i>		X	
Common raven	<i>Corvus corax</i>	X	X	X
Cooper's hawk	<i>Accipiter cooperii</i>	X		
European starling	<i>Sturnus vulgaris</i>	X		X
Grasshopper sparrow ¹	<i>Ammodramus savannarum</i>		X	
Gray partridge	<i>Perdix perdix</i>	X	X	
Great blue heron	<i>Ardea herodias</i>	X		
Golden crowned kinglet	<i>Regulus satrapa</i>	X		
Hermit thrush	<i>Catharus guttatus</i>	X		
Horned lark	<i>Eremophila alpestris</i>	X	X	X
House finch	<i>Carpodacus mexicanus</i>	X		
Killdeer	<i>Charadrius vociferus</i>	X	X	
Lark sparrow	<i>Chondestes grammacus</i>	X		
Lazuli bunting	<i>Passerina amoena</i>		X	
Loggerhead shrike ¹	<i>Lanius ludovicianus</i>	X		
Long-eared owl	<i>Asio otus</i>		X	
Mallard duck	<i>Anas platyrhynchos</i>	X	X	X
Mountain bluebird	<i>Sialia currucoides</i>	X		X

Wildlife Species Observed within the Habitat and Wildlife Survey Area

Common Name	Scientific Name	Identified in 2024 Habitat and Wildlife Survey Area	Identified in 2025 Habitat and Wildlife Survey Area	Identified in 2026 Habitat and Wildlife Survey Area
Mourning dove	<i>Zenaida macroura</i>	X		
Mule deer	<i>Odocoileus hemionus</i>	X		X
Northern harrier ¹	<i>Circus cyaneus</i>	X	X	X
Red-tailed hawk	<i>Buteo jamaicensis</i>	X	X	X
Red-winged black bird	<i>Agelaius phoeniceus</i>	X	X	X
Ring-necked duck	<i>Aythya collaris</i>			X
Ring-necked pheasant	<i>Phasianus colchicus</i>	X		X
Rock pigeon	<i>Columba livia</i>	X		
Rock wren	<i>Salpinctes obsoletus</i>	X		
Ruddy duck	<i>Oxyura jamaicensis</i>		X	
Savanna sparrow	<i>Passerculus sandwichensis</i>	X	X	
Say's phoebe	<i>Sayornis saya</i>	X		
Short-eared owl	<i>Asio flammeus</i>		X	
Song sparrow	<i>Melospiza melodia</i>	X	X	X
Swainson's hawk ¹	<i>Buteo swainsoni</i>		X	
Turkey vulture	<i>Cathartes aura</i>	X	X	X
Vesper sparrow	<i>Pooecetes gramineus</i>	X	X	X
Violet green swallow	<i>Tachycineta thalassina</i>	X		
Western blue bird	<i>Sialia mexicana</i>			X
Western kingbird	<i>Tyrannus verticalis</i>	X		
Western meadowlark	<i>Sturnella neglecta</i>	X	X	X
White crowned sparrow	<i>Zonotrichia leucophrys</i>	X		X
Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>		X	X
Insect				
Monarch butterfly	<i>Danaus plexippus</i>			X
Mammals				
American badger	<i>Taxidea taxus</i>	X		
Belding's ground squirrel	<i>Uroditellus beldingi</i>	X		
Coyote ²	<i>Canis latrans</i>	X	X	
Deer mouse	<i>Peromyscus maniculatus</i>	X		
Jackrabbit ²	<i>Lepus</i> sp.	X	X	X

Wildlife Species Observed within the Habitat and Wildlife Survey Area

Common Name	Scientific Name	Identified in 2024 Habitat and Wildlife Survey Area	Identified in 2025 Habitat and Wildlife Survey Area	Identified in 2026 Habitat and Wildlife Survey Area
Mole ⁴	<i>Scapanus</i> sp.	X		
Mountain cottontail	<i>Sylvilagus nuttallii</i>		X	
Mule deer	<i>Odocoileus hemionus</i>	X	X	X
Nuttall's cottontail rabbit	<i>Sylvilagus nuttallii</i>	X		
Pronghorn	<i>Antilocapra americana</i>		X	X
Vole ³	<i>Lemmys</i> or <i>Microtus</i> sp.	X		
Woodrat ⁴	<i>Neotoma</i> sp.	X		
Reptiles				
Western fence lizard	<i>Sceloporus occidentalis</i>	X		
Western terrestrial garter snake	<i>Thamnophis elegans</i>	X		
Amphibians				
Pacific chorus frog	<i>Pseudacris regilla</i>	X		
1. Special status species 2. Identified by scat only in 2024 and 2025. A black-tailed jackrabbit (<i>Lepus californicus</i>) individual was observed within the 2026 Survey Area. 3. Identified by presence of burrows. 4. Identified by presence of middens.				

2025 Botanical Survey Report

**Speedway Energy Facility
September 2025**

**Prepared for
BGTF Speedway Project LLC**

Prepared by



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1.0 Introduction

This summary report presents the methods and results for the 2024 and 2025 botanical surveys conducted by Tetra Tech and performed for BGTF Speedway Project LLC (BGTF)¹ Speedway Energy Facility (Facility). The Facility is located east and south of the City of Grass Valley in Sherman County, Oregon (Figure 1). The purpose of the botanical surveys was to document the presence of federal or state listed endangered, threatened and candidate vascular plant species and state and county designated noxious weeds. This survey was prepared to support the Facility's Application for Site Certificate through the Oregon Energy Facility Siting Council (EFSC).

2.0 Methods

2.1 Survey Area

The survey area for the botanical surveys (Survey Area) consists of 19,957 acres of privately owned land in Sherman County, Oregon. In 2024, botanical surveys were conducted in the northeastern portion of the Survey Area (approximately 8,782 acres). In 2025, the same surveys and methods were applied to the southwestern portion of the Survey Area and covered about 11,175 acres (Figure 1). This report presents the survey findings for the 2024 and 2025 survey findings combined.

The entire Survey Area was surveyed with the exception of residential areas, agricultural land, and graveled or paved roads which did not contain habitat for the target special status plant species. In 2024, approximately 286 acres bordering the western edge of the Survey Area were not surveyed. At the time of the surveys, this area was being considered as a potential mitigation area. As this parcel was unlikely to be impacted by Facility construction, this area was considered a low survey priority. In 2025, one area was not surveyed: a 63-acre parcel that is the furthest west parcel in the Survey Area and separated from the rest of the area by a steep canyon (Figure 1).

2.2 Target Special Status Plant Species

The initial list of potential primary target special status plant species included vascular plant species listed as endangered, threatened, or candidate by the U.S. Fish and Wildlife Service (USFWS) under the federal Endangered Species Act (ESA), or by the Oregon Department of Agriculture (ODA) under the Oregon ESA. Sources of information reviewed to identify potential target species included:

- Oregon threatened, endangered, and candidate plants (ODA 2024a);
- Oregon Listed Plants by County (ODA 2024b);

¹ References to BGTF generally include or also refer to the parent company and predecessor in interest to the project, Brookfield Renewable N.A., except where specifically noted.

- Oregon Biodiversity Information Center (ORBIC) list of Oregon's rare, threatened, and endangered vascular plant species of Oregon (ORBIC 2023);
- ORBIC Element Occurrence Records for the Facility vicinity (ORBIC 2025);
- USFWS Information for Planning and Consultation (IPaC) Resource List for the Facility vicinity (USFWS 2025); and
- USFWS threatened, endangered, and candidate species list for Oregon (USFWS 2022).

Based on Tetra Tech's preliminary desktop review and knowledge of the area, no federally listed, proposed, or candidate plant species were determined to have potential to occur within the Survey Area. Four vascular plants species are known or have the potential to occur in Sherman County: northern wormwood (*Artemisia campestris* var. *wormskioldii*, state endangered), Lawrence's milkvetch (*Astragalus collinus* var. *laurentii*, state threatened), hepatic monkeyflower (*Erythranthe jungermannioides*, state candidate), and Henderson's ricegrass (*Eriocoma [Achnatherum] hendersonii*, state candidate). The ORBIC element occurrence record for the Survey Area plus a 5-mile surrounding buffer did not include records for these four species (ORBIC 2025).

Two of the special status plants known to occur in Sherman County were removed from consideration as target species. Northern wormwood's range is restricted to low-elevation areas of basalt, compacted cobble, and sand on the banks of the Columbia River. The species is believed to be extirpated in Oregon (ODA 2025a, OregonFlora 2025a); therefore, the Survey Area is unlikely to contain the plant. Hepatic monkeyflower grows on basalt cliff faces in moist crevices or overhanging cliffs (Burke Museum 2025, Pacific Northwest Herbaria 2025). Based on the desktop review, these species' habitat characteristics were not expected to be found within the Survey Area.

Two special status plants were determined to potentially have suitable habitat within the Survey Area: Henderson's ricegrass and Lawrence's milkvetch. While Henderson's ricegrass has a known elevation range that falls above the elevation range of the Facility, the species habitat characteristics are likely be present (OregonFlora 2025a). Henderson's ricegrass is typically found in scablands with dry, rocky, shallow soil, and is often associated with scabland sagebrush (*Artemisia rigida*) and occasionally within ponderosa pine (*Pinus ponderosa*) forest openings (Burke Museum 2025, OregonFlora 2025a). Based on the desktop review, the associated scabland sagebrush habitat may be present, but scarce, within the Survey Area.

Lawrence's milkvetch's suitable habitat includes sandy or rocky soils overlying basalt on dry slopes, in Palouse grasslands, bunchgrass prairies, and roadsides (ODA 2025b, OregonFlora 2025a). It occurs predominantly between 2,000 – 3,400 feet, but has been reported in elevations as low as 400 feet. Commonly associated plant species include: bluebunch wheatgrass (*Pseudoroegneria spicata*), Canby's bluegrass (*Poa secunda* ssp. *secunda*), Idaho fescue (*Festuca idahoensis*), cheatgrass (*Bromus tectorum*), and Carey's balsamroot (*Balsamorhiza careyana*). These habitats and associated species are highly likely to occur within the Survey Area. Because Lawrence's milkvetch is the only species with a known overlapping elevation range and habitat types that are likely to be found in the Survey Area, this was the primary target species for the botanical surveys.

2.3 Pre-field Review

Prior to conducting field surveys, Tetra Tech completed a review of existing literature, herbarium records, and other sources prior to field surveys to gather information about each of the special status plant species that could be encountered within the Survey Area. Prior to conducting field surveys, fact sheets for the target species were compiled. Fact sheets were used by surveyors in the field and included the following:

- Photos of the target species and their habitats;
- Information detailing habitat associations;
- Range and flowering periods;
- Identifying features; and
- Characteristics distinguishing the target species from similar species within its range.

Tetra Tech also reviewed the list of noxious weed species designated as A, B, and T by ODA (ODA 2024c), as well as the noxious weed list for Sherman County (Sherman County 2001, Sherman County 2024). These lists were carried by surveyors and were referred to while conducting surveys.

2.4 Survey Schedule

Tetra Tech completed botanical surveys when the target species, Lawrence's milkvetch and Henderson's ricegrass, were expected to be identifiable. The ideal survey period for Lawrence's milkvetch is May – August and mature fruits are required to differentiate the rare variety (OregonFlora2025a). The flowering period for Henderson's ricegrass is May – June (Burke Museum 2025), but the species can also be identified in later fruiting stages (Meyers et al. 2015). Due to the requirement of mature fruits for positive identification of Lawrences milkvetch and this species having the highest likelihood of occurrence, the surveys were completed June 29 – July 4, 2025, with an additional visit July 16 – 18, 2025. However, the earlier surveys in 2024 occurred July 22 – 26, due to nearby wildfires that forced the surveys to occur later than initially planned.

2.5 Field Survey Methods

Tetra Tech conducted botanical field surveys using the Intuitive Controlled survey method, a standard and commonly accepted survey protocol (USFS and BLM 1998). This method incorporates meandering transects that traverse the survey area targeting the full array of major vegetation types, aspects, topographical features, habitats, and substrate types. While en route, surveyors search for target special status plant species, and when the surveyors arrive at an area of high potential habitat (that was defined in the pre-field review or encountered during the field visit), they conduct a complete survey for the target species. Complete surveys include an examination of 100 percent of the habitat.

If target species were encountered, GPS locations would be collected using a tablet and a submeter accuracy GPS unit. For individual plants, a single GPS point would be recorded. For populations

spread across a large area, a polygon would be mapped to encompass all individuals. Data would be collected according to protocols sufficient for completing ORBIC siting forms, and photos would be taken to document identifying characteristics, plant habit, and habitat and serve as digital specimen vouchers.

Data for each occurrence, if observed, would include the following:

- Species phenology;
- Number of plants observed;
- Habitat information and associated species; and
- Visible threats.

During surveys, Tetra Tech maintained a running list of vascular plant species encountered and made informal collections of unknown species for later identification (Attachment 1). Identification was verified using the appropriate plant keys; in particular, Flora of the Pacific Northwest and Flora of Oregon (Meyers et al. 2015, Hitchcock and Cronquist 2018, Meyers et al. 2020). Nomenclature follows the Oregon Vascular Plant Checklist, as used by OregonFlora (OregonFlora 2025b).

Surveyors additionally recorded observations of ODA-listed noxious weeds, which included A, B, and T listed species (ODA 2024c), as well as listed weeds for Sherman County (Sherman County 2024). Observations were documented as GPS polygons with estimates of density of plants recorded. Where noxious weeds occurred as an isolated individual or a small population within a 10-foot area, a point was collected.

3.0 Results

Botanical surveys were conducted from July 22 – 26, 2024, in the northeastern portion of the Survey Area, and from June 29 – July 4, 2025, and July 16 – 18, 2025, for the southwestern portion. The landscape within the Survey Area was composed of agriculture, eastside grasslands and planted grasslands (identified by landowners as Conservation Reserve Program lands), low rabbitbrush shrubland, and sagebrush shrub-steppe with a small component of wetlands and stream features. The majority of the Survey Area was predominantly flat but many drainages form rolling hills and the southwestern corner features rocky canyon slopes.

The common shrub species observed within the Survey Area were big sagebrush (*Artemisia tridentata*), rubber rabbitbrush (*Ericameria nauseosa*), grey horsebrush (*Tetradymia canescens*), and green rabbitbrush (*Chrysothamnus viscidiflorus*). Native or non-weedy dominant grasses include bluebunch wheatgrass, Canby's bluegrass, Idaho fescue and in Conservation Reserve Program areas, intermediate wheatgrass (*Thinopyrum intermedium*) and crested wheatgrass (*Agropyron cristatum*). Non-native, invasive grasses were ubiquitous throughout the Survey Area including medusahead (*Taeniatherum caput-medusae*), bulbous bluegrass (*Poa bulbosa*), and cheatgrass.

Native forbs commonly found throughout the Survey Area included Carey's balsamroot, sagebrush mariposa lily (*Calochortus macrocarpus*), several buckwheat species (*Eriogonum* sp.) and various lupine species (*Lupinus* sp.). Common non-native forbs included prickly lettuce (*Lactuca serriola*), alfalfa (*Medicago sativa*), tall tumbled mustard (*Sisymbrium altissimum*), storksbill (*Erodium cicutarium*) and several thistle species: Russian thistle (*Salsola tragus*), Canada thistle (*Cirsium arvense*), and Scotch thistle (*Onopordum acanthium*). A majority of the wetland features and drainages contained higher concentrations of nonnative species including ventenata (*Ventenata dubia*), medusahead, Canada thistle, and curly dock (*Rumex crispus*).

Bare ground was uncommon throughout the Survey Area, unless on roads or areas recently disturbed by row crop machinery. Several areas scattered on the slopes of drainages contained scablands with shallow rocky soils and low vegetative cover. Overall, the Survey Area is dominated by a mix of native and invasive species and is highly altered as a result of current and historic farming, cattle grazing, roads (paved and two-track), residential areas, and installed fences. Photos of key species and habitat types taken during the surveys can be found in Attachment 2.

3.1 Target Species

Tetra Tech did not observe any occurrences of special status vascular plant species in the Survey Area. Additionally, there is no evidence from desktop review of historical records that the target special status plants are known to occur within the Survey Area. Five other milkvetch species (*Astragalus* sp.) that are not the target species, but within the same genus, were documented within the Survey Area (Attachment 1).

3.2 Noxious Weeds

Tetra Tech recorded 20 listed noxious weed species within the Survey Area; including 15 ODA "B" designated noxious weed species and 19 Sherman County listed weeds. Table 1 lists the noxious weed species observed, their noxious weed designation, and the frequency of observations. Noxious weeds were common throughout the Survey Area, often associated with edges of agricultural fields, drainages, and roadsides. Weeds were also plentiful in low quality grasslands adjacent to agricultural fields and in isolated weedy grasslands surrounded by agriculture (Figure 2).

Table 1. Noxious Weeds Located Within the Survey Area

Scientific Name	Common Name	Status (State ¹ /County ²)	Frequency
<i>Aegilops cylindrica</i>	jointed goatgrass	B/C	Several small occurrences in the southern portion of the Survey Area.
<i>Centaurea diffusa</i>	diffuse knapweed	B*/B	Many small, isolated occurrences, often associated with roads.
<i>Centaurea stoebe</i>	spotted knapweed	B* /A	Two small populations near the town of Grass Valley.
<i>Chondrilla juncea</i>	rush skeletonweed	B (T)*/A(T)	Scattered populations, often occurring with only a few individuals.
<i>Cirsium arvense</i>	Canada thistle	B */B (T)	Common in drainages and disturbed areas. Dense populations near wetland features.
<i>Cirsium undulatum</i> ³	wavyleaf thistle	-/C	Several small populations in the southern area.
<i>Cirsium vulgare</i>	bull thistle	B*/C	Infrequent small occurrences, mostly in drainages.
<i>Convolvulus arvensis</i>	field bindweed	B*/B	Infrequent small occurrences.
<i>Conyza canadensis</i> ³	horseweed	-/C	Infrequent patches near agricultural edges and roadsides.
<i>Hypericum perforatum</i>	common St. John's wort	B/C	One population in the southeast.
<i>Lactuca serriola</i>	prickly lettuce	-/C	Widespread throughout Survey Area.
<i>Lepidium draba</i>	heart-podded hoary cress	B* /B (T)	Infrequent but commonly forms dense populations.
<i>Lepidium latifolium</i>	perennial pepperweed	B (T)/C	Infrequent, small populations recorded in the center of Survey Area.
<i>Linaria dalmatica</i>	Dalmatian toadflax	B* /B (T)	One occurrence with only a few individuals.
<i>Onopordum acanthium</i>	Scotch thistle	B (T)/B (T)	Small infrequent occurrences. One large population along the drainage east of Grass Valley.
<i>Rhaponticum repens</i>	Russian knapweed	B*/B	Several small populations.
<i>Salsola tragus</i>	Russian thistle	-/C	Common, often associated with the edges of agricultural fields.
<i>Secale cereale</i>	cereal rye	-/C	Single large occurrence in the northeast.
<i>Taeniatherum caput-medusae</i>	medusahead	B/C	Widespread, dominant grass species

Scientific Name	Common Name	Status (State ¹ /County ²)	Frequency
<i>Ventenata dubia</i>	ventenata	B/-	Common throughout the Survey Area. Dense cover near drainages and wetland features.
1. “-”: Not listed. “A” designated weeds: Weeds of known economic importance which occur in the state in small enough infestations to make eradication/containment possible; or which are not known to occur, but their presence in neighboring states makes future occurrence in Oregon seem imminent. “B” designated weeds: Weeds of economic importance which are regionally abundant, but which may have limited distribution in some counties. “T” designated weeds: A priority noxious weed designated by the Oregon State Weed Board as a target for which the ODA will develop and implement a statewide management plan. “T” designated noxious weeds are species selected from either the “A” or “B” list (ODA 2024c). Species marked with a (*) are targeted for biocontrol. 2. “A” Class – HIGH PRIORITY. Any noxious weed which greatly endangers the overall economic well-being of the County and has a small enough distribution where eradication is possible. “B” Class – MODERATE PRIORITY. A noxious weed which is well established in the County and has known negative impacts, but due to its distribution, eradication is not feasible. “C” Class – LOW PRIORITY. A noxious weed which is widespread throughout the County and has known economic impacts. “T” Class - TARGETED LIST. A noxious weed from any Class that the Weed Advisory Board wishes to focus efforts and resources on (Sherman County 2024). 3. Native Species.			

State-listed noxious weed species observed in the Survey Area were all state “B”-designated weeds. Nine of these B-designated noxious weeds are specifically targeted for biocontrol by ODA (ODA 2024c). At the county level, two “A” class, seven “B” class and ten “C” class noxious weed species were recorded in the Survey Area (Table 1). Six of these species are designated “T” class at the state or county level and may be targeted for specific prevention and control (ODA 2024c, Sherman County 2024).

The most widespread noxious weed species observed in the Survey Area was medusahead. It was present throughout all habitat types and occurred in dense patches or sparsely growing intermixed with cheatgrass. Prickly lettuce was also widespread occurring predominantly in isolated clusters of a few individuals. Russian thistle, horseweed and jointed goat grass were prominent along agricultural field edges and knapweed species occurred along roads. Scotch thistle was sparse besides one large occurrence in the center of the Survey Area which dominated several acres of grazed land. Cereal rye was only observed in one large population in the northernmost parcel of the Survey Area. Many species, including ventenata and Canada thistle, had increased abundance and density near wetland and stream features.

One location of hybrid goatgrass (*x Aegilotriticum sancti-andreae*), a cross between cultivated wheat and goat grass was documented along the western edge growing intermixed with the nonhybrid species. This species has been documented only three times in Oregon (Pacific Northwest Herbaria 2025).

4.0 Conclusions

No endangered, threatened, proposed, or candidate vascular plant species were documented within the Survey Area during a desktop review or during the 2024 and 2025 botanical field surveys. Tetra

Tech documented 20 state or county designated noxious weed species within the Survey Area. Noxious weeds were common throughout, but were observed in higher concentrations in disturbed areas, along roadways and edges of agricultural fields, and for multiple species, within drainages or wetland features. In addition to documented noxious weeds, a high coverage of non-listed, non-native species, such as cheatgrass, were observed. A complete list of species observed is within Attachment 1.

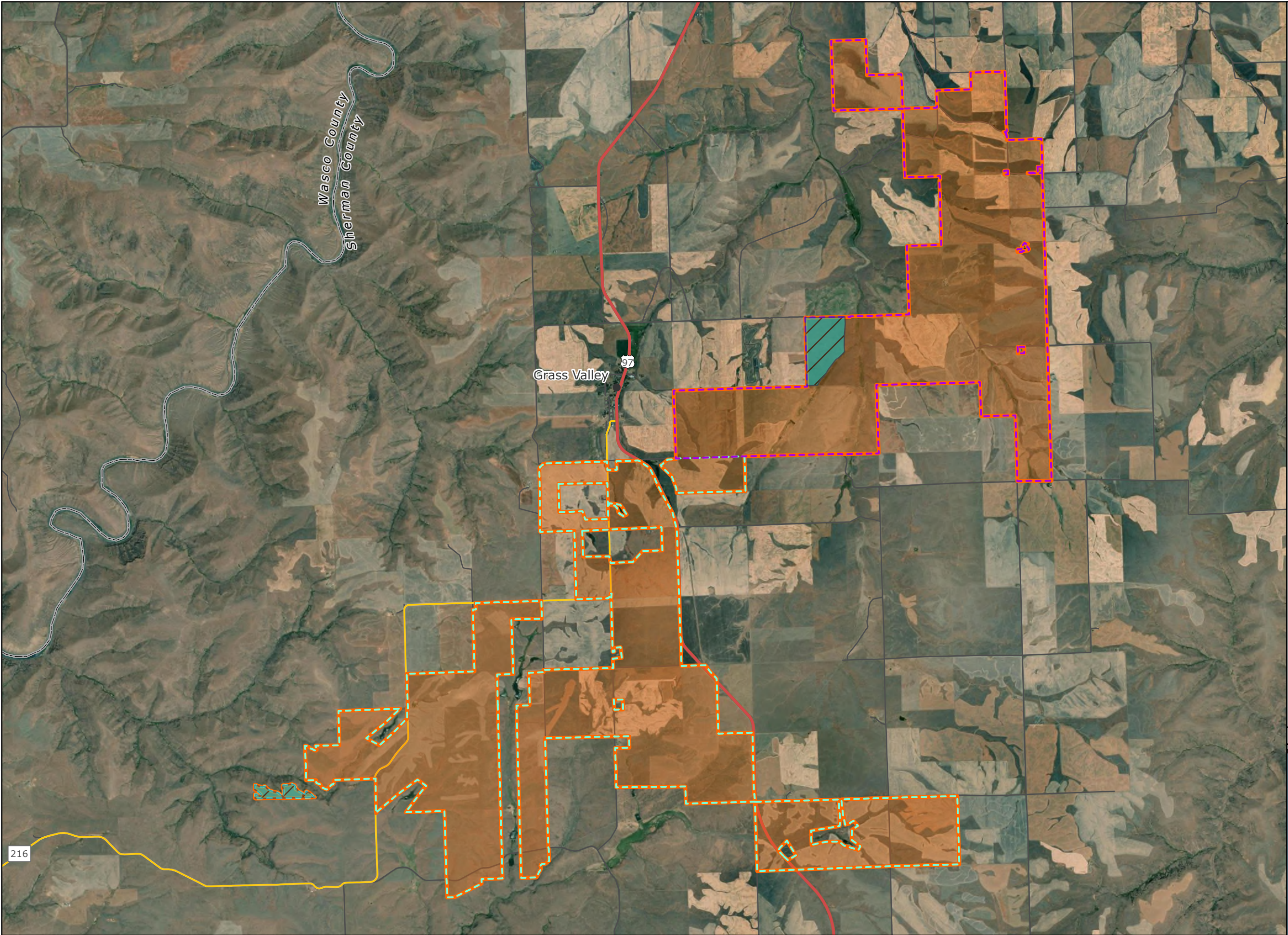
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Figures

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Speedway Energy

Figure 1
Botanical Survey Area

SHERMAN COUNTY, OR

- Botanical Survey Area
- 2025 Survey Area
- 2024 Survey Area
- Areas Not Surveyed
- City/Town
- County Boundary
- US Highway
- State Highway
- Local Roads



Reference Map



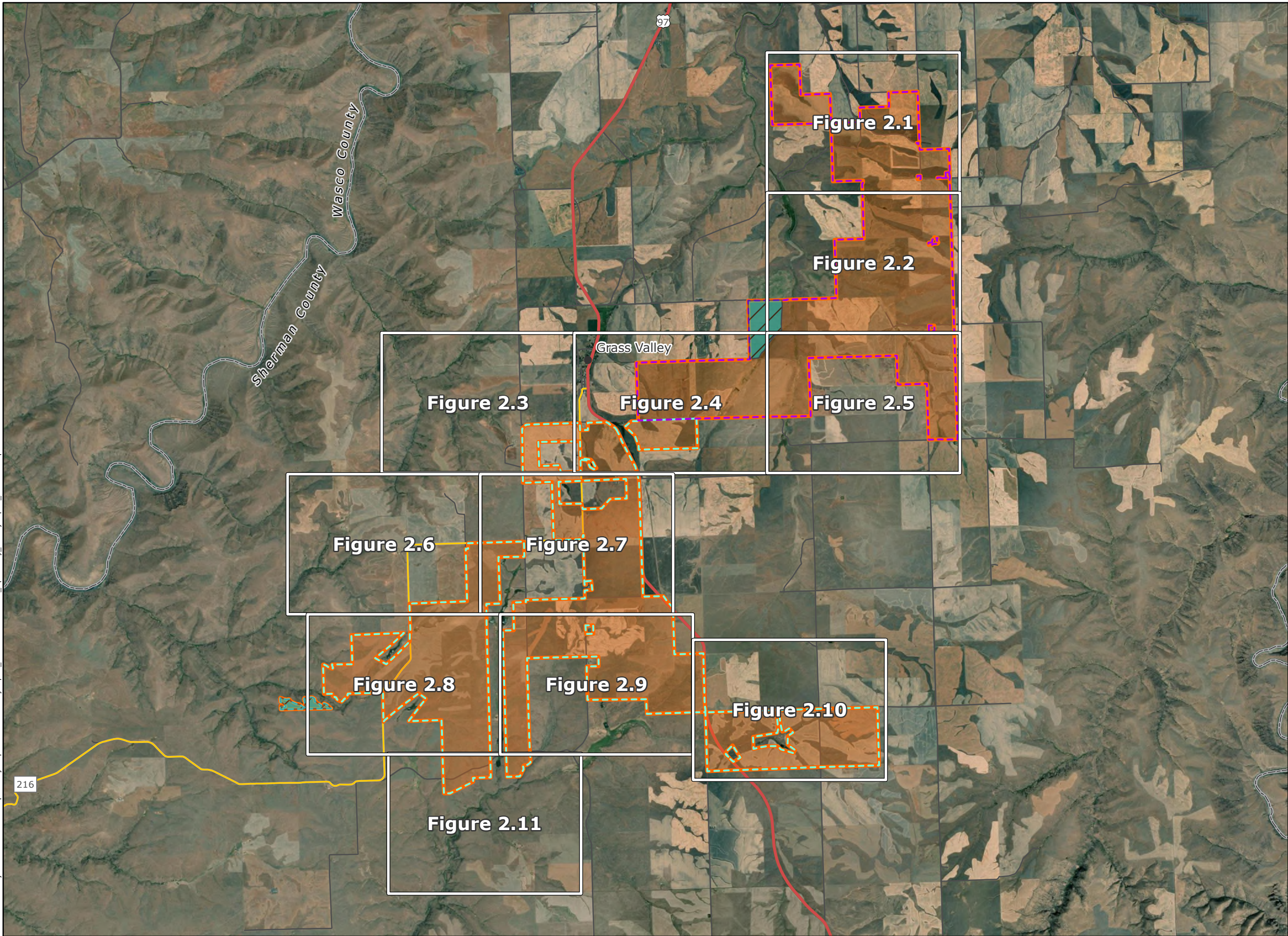
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WGS 1984 UTM Zone 10N

0 1 2 4 6 8 Miles

NOT FOR CONSTRUCTION

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Speedway Energy

Figure 2 Noxious Weed Occurrences Index Map

SHERMAN COUNTY, OR

- Grid Index
- Botanical Survey Area
- 2025 Survey Area
- 2024 Survey Area
- Areas Not Surveyed
- City/Town
- County Boundary
- US Highway
- State Highway
- Local Roads



Reference Map



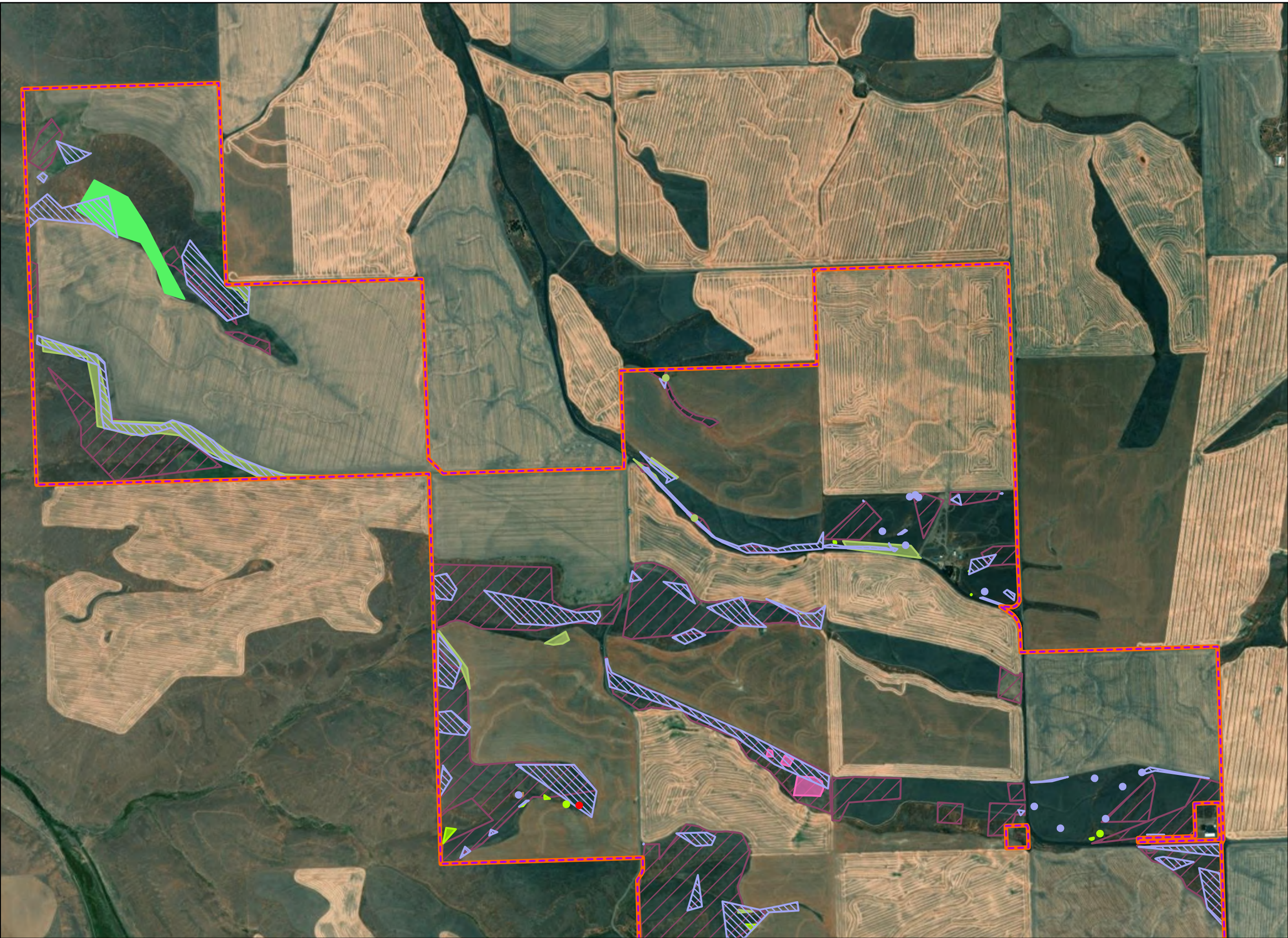
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Speedway Energy

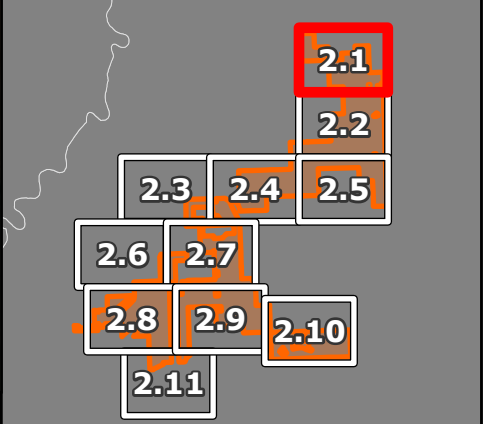
Figure 2.1
Noxious Weed
Occurrences
Detail Map

SHERMAN COUNTY, OR

- Botanical Survey Area
- 2024 Survey Area
- Noxious Weed Observations
- Bull thistle (*Cirsium vulgare*)
 - Canada thistle (*Cirsium arvense*)
 - Cereal rye (*Secale cereale*)
 - Field bindweed (*Convolvulus arvensis*)
 - Medusahead (*Taeniatherum caput-medusae*)
 - Prickly lettuce (*Lactuca serriola*)
 - Russian thistle (*Salsola tragus*)
 - Scotch thistle (*Onopordum acanthium*)



Reference Map



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Speedway Energy

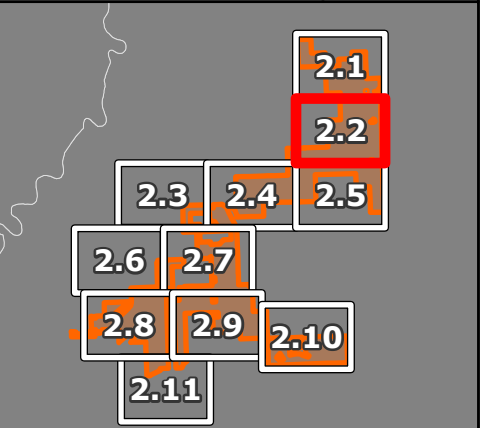
Figure 2.2
Noxious Weed
Occurrences
Detail Map

SHERMAN COUNTY, OR

- Botanical Survey Area
- 2024 Survey Area
- Areas Not Surveyed
- Noxious Weed Observations
 - Bull thistle (*Cirsium vulgare*)
 - Canada thistle (*Cirsium arvense*)
 - Diffuse knapweed (*Centaurea diffusa*)
 - Field bindweed (*Convolvulus arvensis*)
 - Medusahead (*Taeniatherum caput-medusae*)
 - Prickly lettuce (*Lactuca serriola*)
 - Russian thistle (*Salsola tragus*)
 - Scotch thistle (*Onopordum acanthium*)

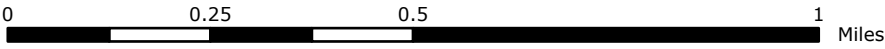


Reference Map



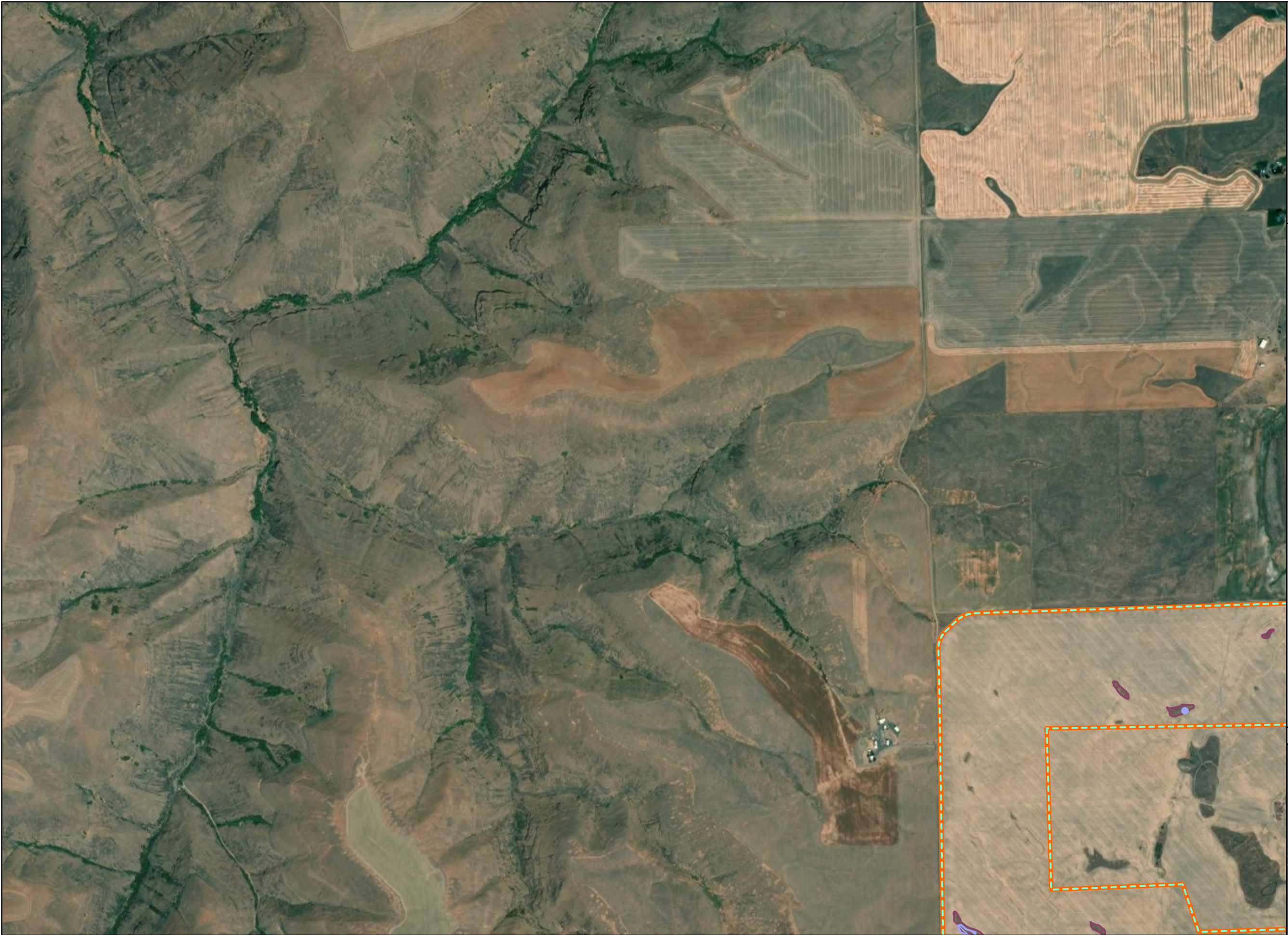
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Speedway Energy

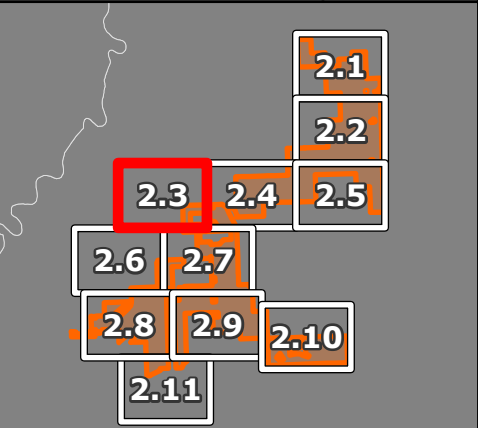
Figure 2.3
Noxious Weed
Occurrences
Detail Map

SHERMAN COUNTY, OR

- Botanical Survey Area
- 2025 Survey Area
- Noxious Weed Observations
 - Medusahead (*Taeniatherum caput-medusae*)
 - Prickly lettuce (*Lactuca serriola*)

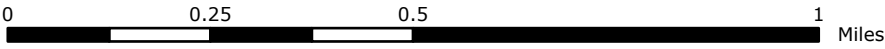


Reference Map



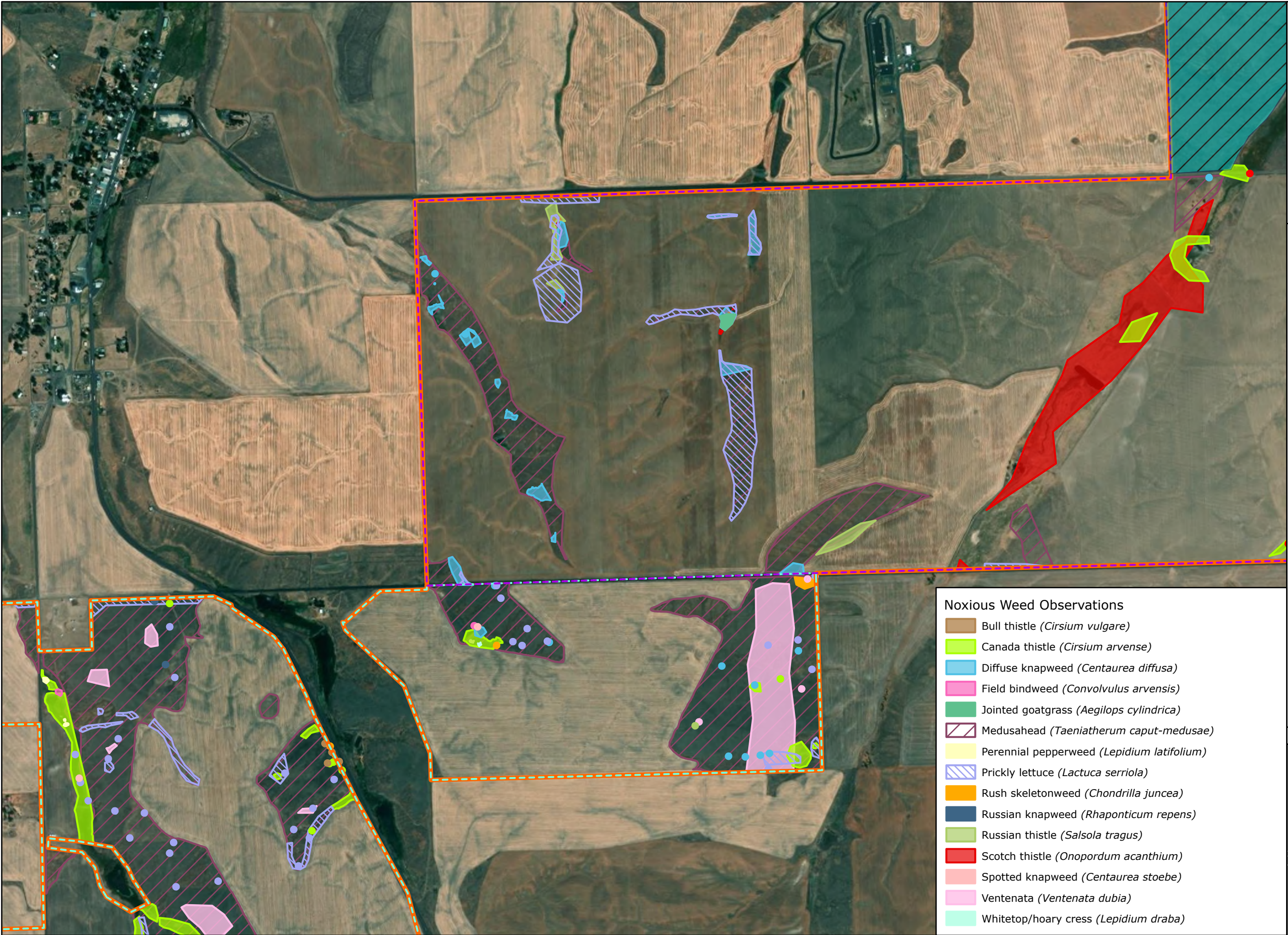
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Speedway Energy

Figure 2.4
Noxious Weed
Occurrences
Detail Map

SHERMAN COUNTY, OR

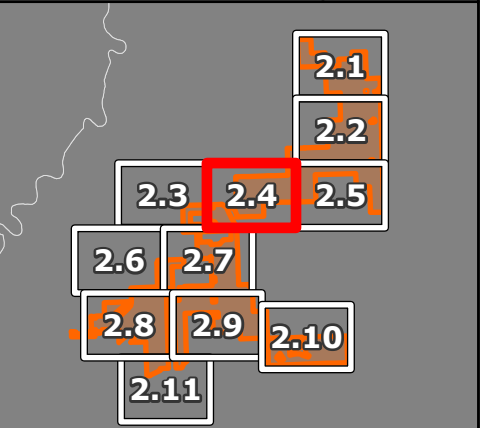
- Botanical Survey Area
- 2025 Survey Area
- 2024 Survey Area
- Areas Not Surveyed

Noxious Weed Observations

- Bull thistle (*Cirsium vulgare*)
- Canada thistle (*Cirsium arvense*)
- Diffuse knapweed (*Centaurea diffusa*)
- Field bindweed (*Convolvulus arvensis*)
- Jointed goatgrass (*Aegilops cylindrica*)
- Medusahead (*Taeniatherum caput-medusae*)
- Perennial pepperweed (*Lepidium latifolium*)
- Prickly lettuce (*Lactuca serriola*)
- Rush skeletonweed (*Chondrilla juncea*)
- Russian knapweed (*Rhaponticum repens*)
- Russian thistle (*Salsola tragus*)
- Scotch thistle (*Onopordum acanthium*)
- Spotted knapweed (*Centaurea stoebe*)
- Ventenata (*Ventenata dubia*)
- Whitetop/hoary cress (*Lepidium draba*)



Reference Map



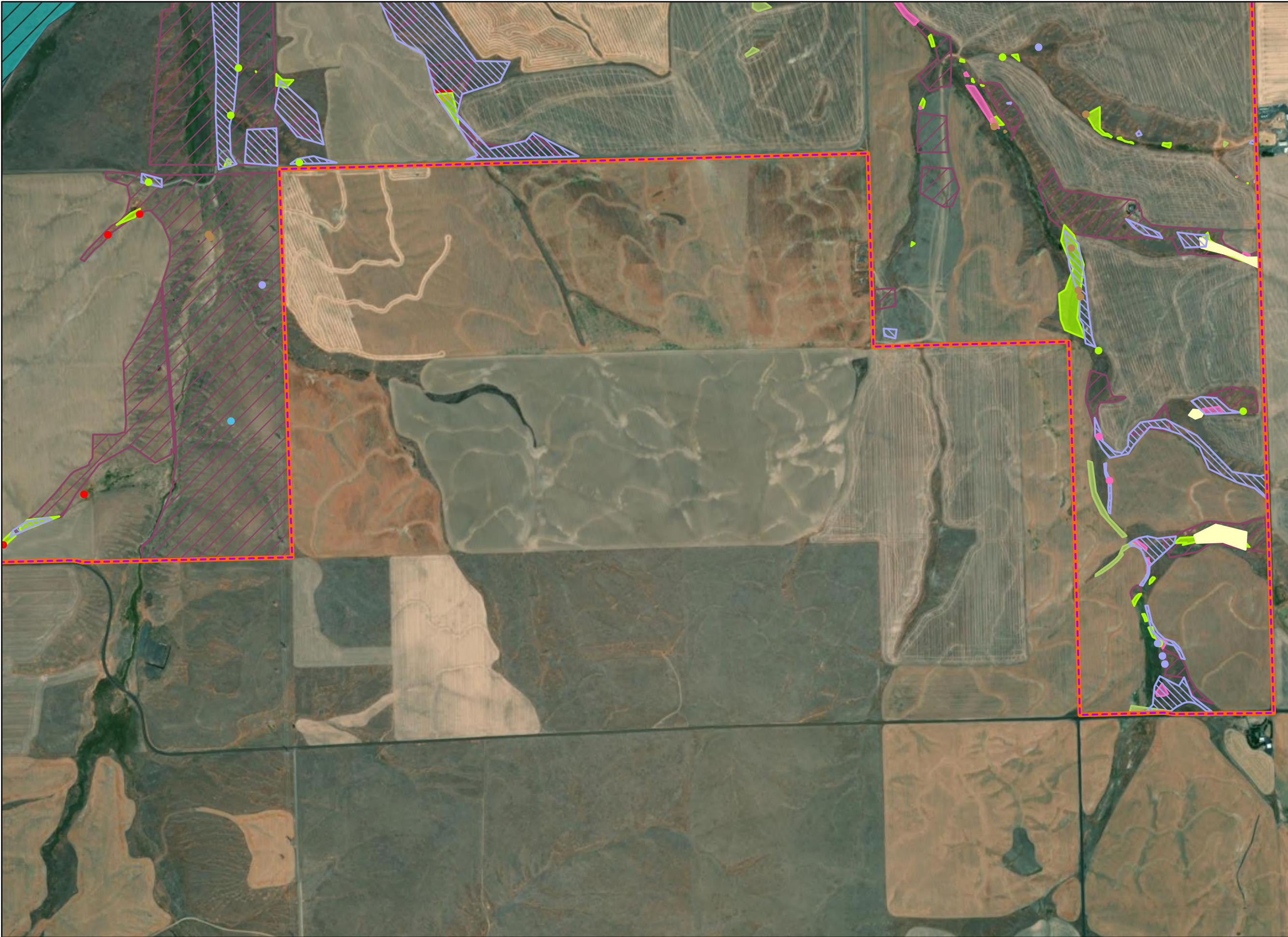
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Speedway Energy

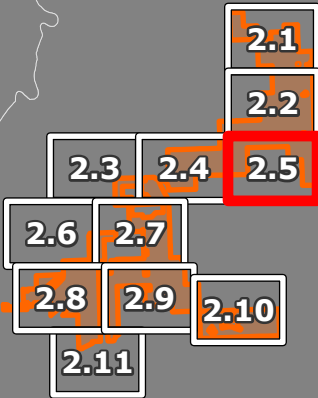
Figure 2.5
Noxious Weed
Occurrences
Detail Map

SHERMAN COUNTY, OR

- Botanical Survey Area
- 2024 Survey Area
- Areas Not Surveyed
- Noxious Weed Observations
 - Bull thistle (*Cirsium vulgare*)
 - Canada thistle (*Cirsium arvense*)
 - Diffuse knapweed (*Centaurea diffusa*)
 - Field bindweed (*Convolvulus arvensis*)
 - Medusahead (*Taeniatherum caput-medusae*)
 - Perennial pepperweed (*Lepidium latifolium*)
 - Prickly lettuce (*Lactuca serriola*)
 - Russian thistle (*Salsola tragus*)
 - Scotch thistle (*Onopordum acanthium*)



Reference Map



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Speedway Energy

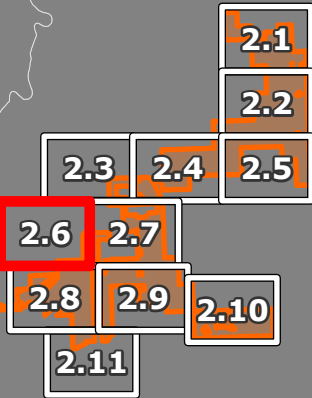
Figure 2.6
Noxious Weed
Occurrences
Detail Map

SHERMAN COUNTY, OR

- Botanical Survey Area
- 2025 Survey Area
- Noxious Weed Observations
 - Canada thistle (*Cirsium arvense*)
 - Medusahead (*Taeniatherum caput-medusae*)
 - Prickly lettuce (*Lactuca serriola*)
 - Ventenata (*Ventenata dubia*)



Reference Map



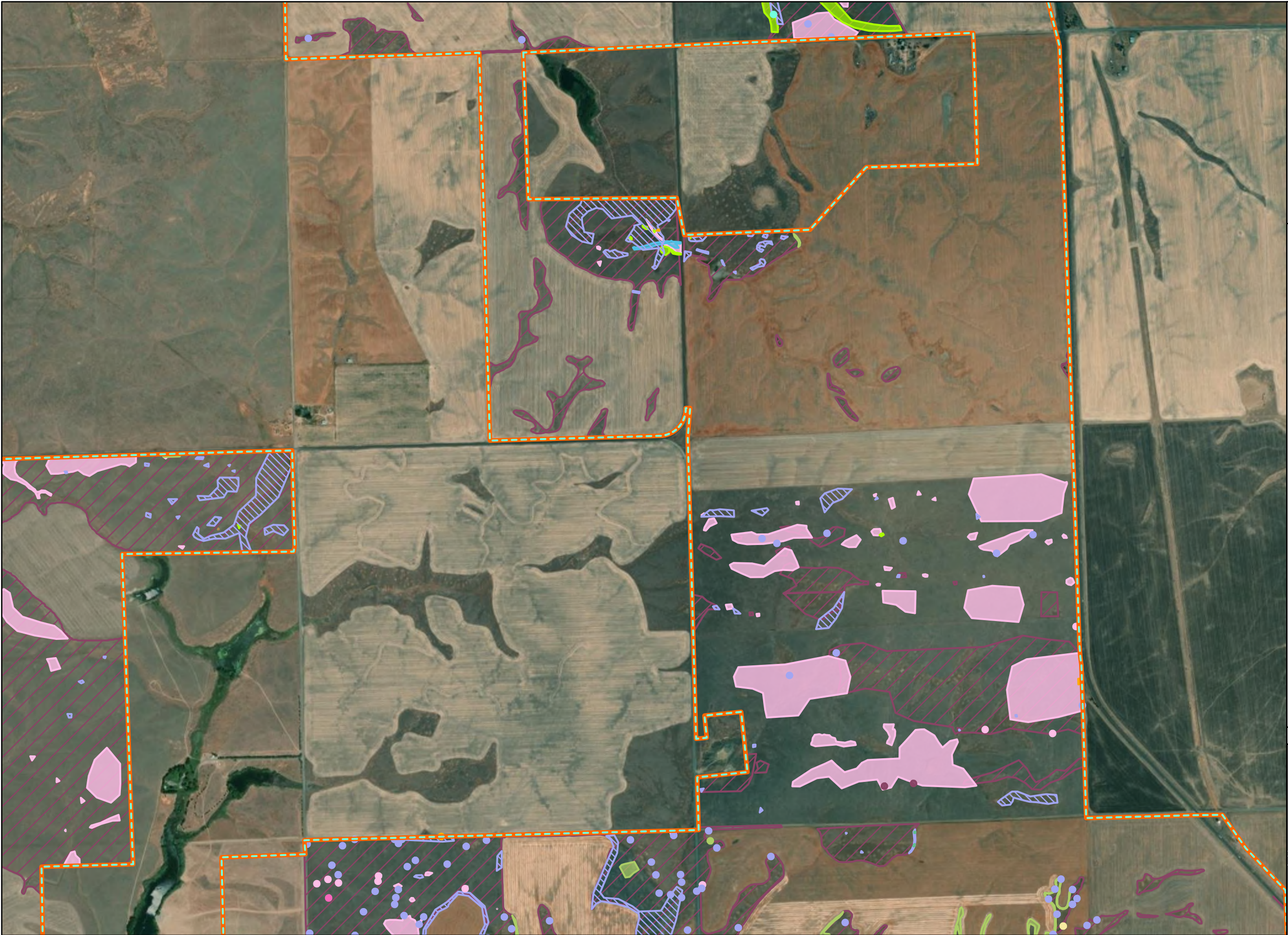
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Speedway Energy

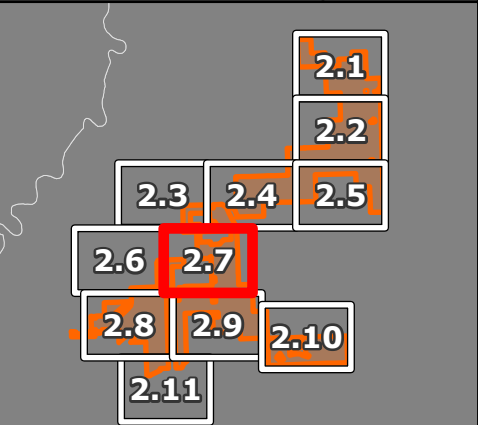
Figure 2.7
Noxious Weed
Occurrences
Detail Map

SHERMAN COUNTY, OR

- Botanical Survey Area
- 2025 Survey Area
- Noxious Weed Observations
 - Bull thistle (*Cirsium vulgare*)
 - Canada thistle (*Cirsium arvense*)
 - Dalmatian toadflax (*Linaria dalmatica*)
 - Diffuse knapweed (*Centaurea diffusa*)
 - Field bindweed (*Convolvulus arvensis*)
 - Horseweed (*Conyza canadensis*)
 - Jointed goatgrass (*Aegilops cylindrica*)
 - Medusahead (*Taeniatherum caput-medusae*)
 - Prickly lettuce (*Lactuca serriola*)
 - Rush skeletonweed (*Chondrilla juncea*)
 - Russian thistle (*Salsola tragus*)
 - Ventenata (*Ventenata dubia*)



Reference Map



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Speedway Energy

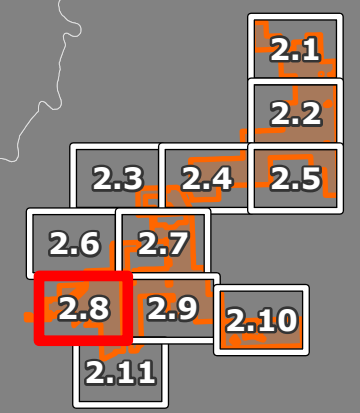
Figure 2.8 Noxious Weed Occurrences Detail Map

SHERMAN COUNTY, OR

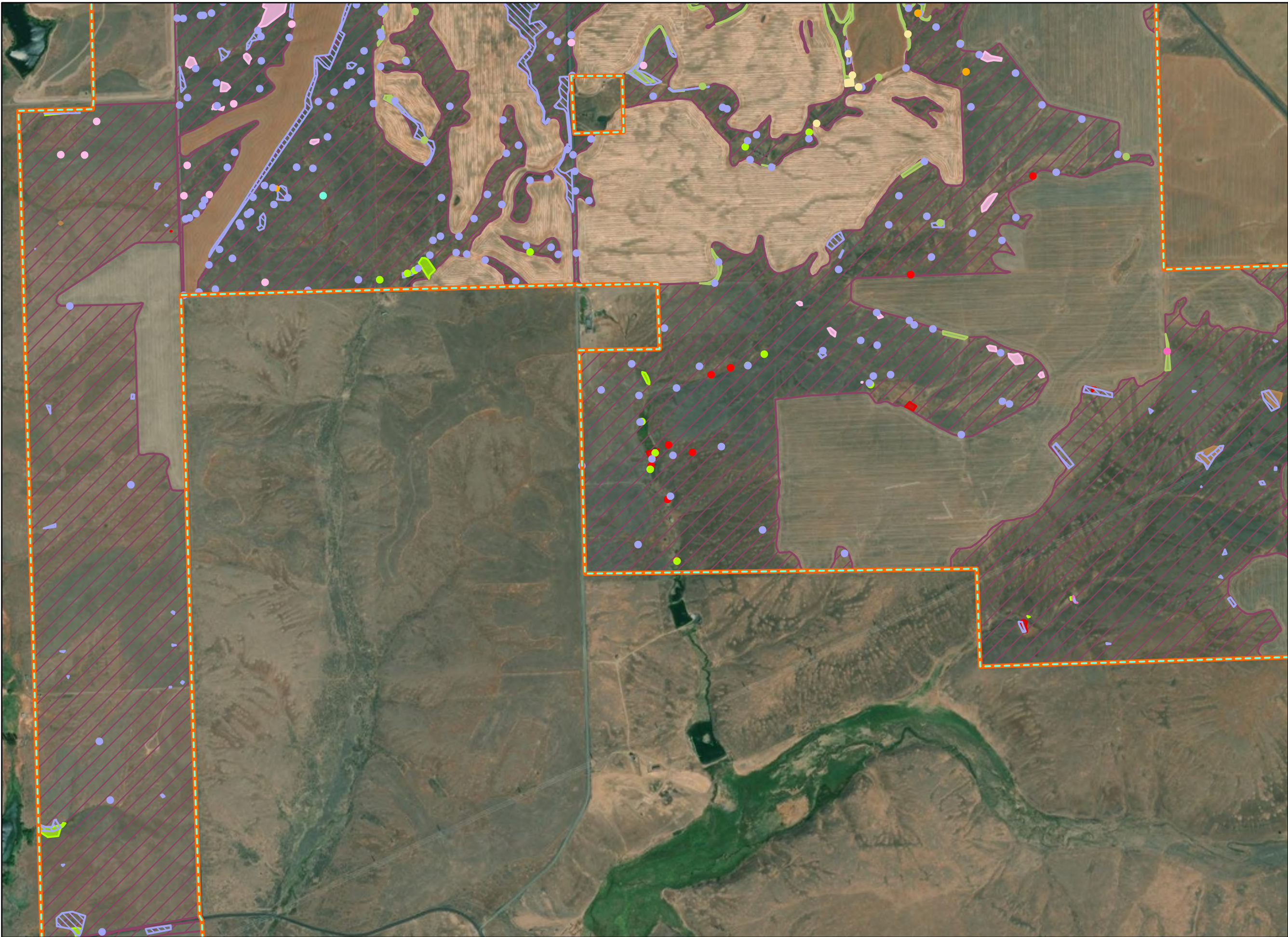
- Botanical Survey Area
- 2025 Survey Area
- Areas Not Surveyed
- Noxious Weed Observations
 - Bull thistle (*Cirsium vulgare*)
 - Canada thistle (*Cirsium arvense*)
 - Diffuse knapweed (*Centaurea diffusa*)
 - Jointed goatgrass (*Aegilops cylindrica*)
 - Medusahead (*Taeniatherum caput-medusae*)
 - Prickly lettuce (*Lactuca serriola*)
 - Rush skeletonweed (*Chondrilla juncea*)
 - Scotch thistle (*Onopordum acanthium*)
 - Ventenata (*Ventenata dubia*)
 - Wavyleaf Thistle (*Cirsium undulatum*)



Reference Map



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Speedway Energy

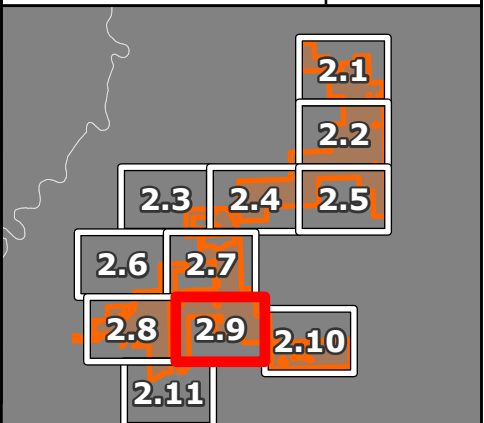
**Figure 2.9
Noxious Weed
Occurrences
Detail Map**

SHERMAN COUNTY, OR

- Botanical Survey Area
- 2025 Survey Area
- Noxious Weed Observations**
- Bull thistle (*Cirsium vulgare*)
 - Canada thistle (*Cirsium arvense*)
 - Dalmatian toadflax (*Linaria dalmatica*)
 - Field bindweed (*Convolvulus arvensis*)
 - Horseweed (*Conyza canadensis*)
 - Medusahead (*Taeniatherum caput-medusae*)
 - Prickly lettuce (*Lactuca serriola*)
 - Rush skeletonweed (*Chondrilla juncea*)
 - Russian thistle (*Salsola tragus*)
 - Scotch thistle (*Onopordum acanthium*)
 - Ventenata (*Ventenata dubia*)



Reference Map



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Speedway Energy

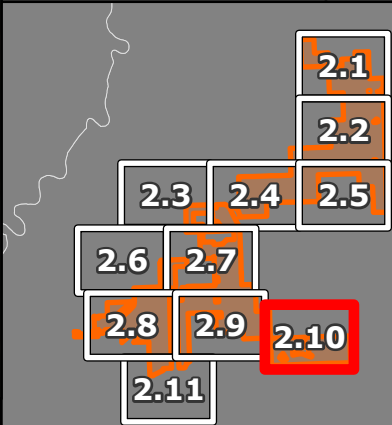
Figure 2.10
Noxious Weed
Occurrences
Detail Map

SHERMAN COUNTY, OR

- Botanical Survey Area
- 2025 Survey Area
- Noxious Weed Observations
 - Canada thistle (*Cirsium arvense*)
 - Common St. Johnswort (*Hypericum perforatum*)
 - Diffuse knapweed (*Centaurea diffusa*)
 - Horseweed (*Conyza canadensis*)
 - Jointed goatgrass (*Aegilops cylindrica*)
 - Medusahead (*Taeniatherum caput-medusae*)
 - Perennial pepperweed (*Lepidium latifolium*)
 - Prickly lettuce (*Lactuca serriola*)
 - Rush skeletonweed (*Chondrilla juncea*)
 - Russian knapweed (*Rhaponticum repens*)
 - Russian thistle (*Salsola tragus*)
 - Scotch thistle (*Onopordum acanthium*)
 - Ventenata (*Ventenata dubia*)
 - Whitetop/hoary cress (*Lepidium draba*)



Reference Map



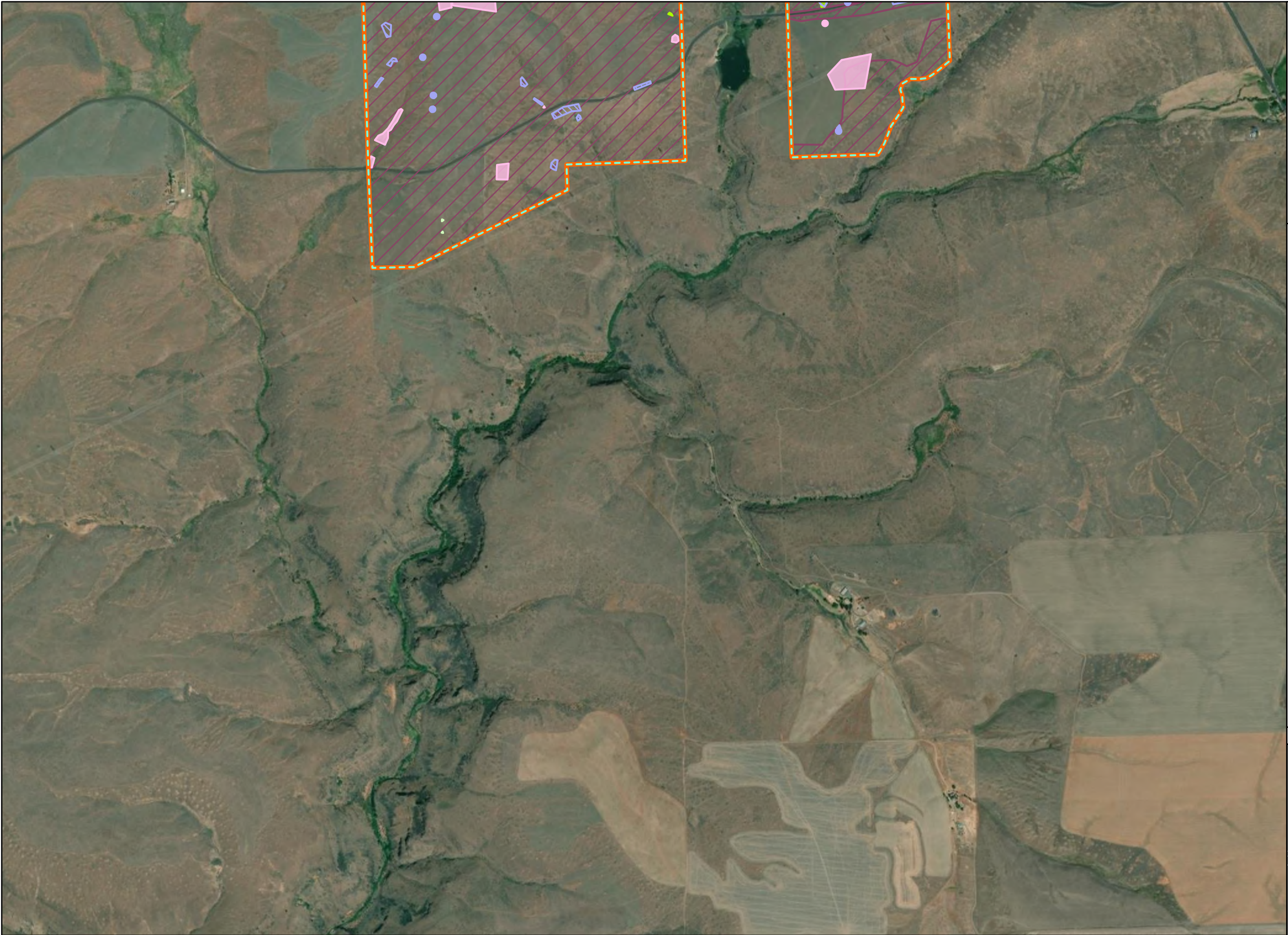
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Speedway Energy

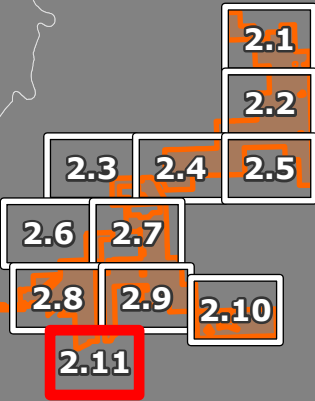
Figure 2.11
Noxious Weed
Occurrences
Detail Map

SHERMAN COUNTY, OR

- Botanical Survey Area
- 2025 Survey Area
- Noxious Weed Observations
- Canada thistle (*Cirsium arvense*)
 - Medusahead (*Taeniatherum caput-medusae*)
 - Prickly lettuce (*Lactuca serriola*)
 - Ventenata (*Ventenata dubia*)
 - Wavyleaf Thistle (*Cirsium undulatum*)



Reference Map



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WGS 1984 UTM Zone 10N

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Attachment 1. Vascular Plants Observed During Botanical Surveys

Attachment 1.
Vascular Plants Observed During Botanical Surveys

Scientific Name ¹	Common Name	Native or Introduced ²	Notes
<i>Achillea millefolium</i>	yarrow	N	
<i>Acmispon americanus</i>	Spanish clover	N	
<i>Aegilops cylindrica</i>	jointed goatgrass	I	ODA Noxious Weed B List; Sherman County Class C
<i>Agoseris grandiflora</i>	bigflower agoseris	N	
<i>Agropyron cristatum</i>	crested wheatgrass	I	
<i>Alisma triviale</i>	northern water plantain	N	
<i>Allium acuminatum</i>	onion	N	
<i>Amelanchier alnifolia</i>	service berry	N	
<i>Amsinckia menziesii</i>	common fiddleneck	N	
<i>Antennaria dimorpha</i>	low pussytoes	N	
<i>Antennaria microphylla</i>	littleleaf pussytoes	N	
<i>Anthemis cotula</i>	dog-fennel	I	
<i>Anthriscus caucalis</i>	bur chervil	I	
<i>Artemisia dracunculus</i>	tarragon	N	
<i>Artemisia rigida</i>	stiff scabland sagebrush	N	
<i>Artemisia tridentata</i>	big sagebrush	N	
<i>Astragalus conjunctus</i>	stiff milkvetch	N	
<i>Astragalus filipes</i>	basalt milkvetch	N	
<i>Astragalus howellii</i>	Howell's milkvetch	N	
<i>Astragalus lentiginosus</i>	freckled milkvetch	N	
<i>Astragalus purshii</i>	Pursh's milkvetch	N	
<i>Balsamorhiza careyana</i>	Carey's balsamroot	N	
<i>Blepharipappus scaber</i>	rough eyelashweed	N	
<i>Bromus commutatus</i>	meadow brome	I	
<i>Bromus inermis</i>	smooth brome	I	
<i>Bromus japonicus</i>	Japanese brome	I	
<i>Bromus tectorum</i>	cheatgrass	I	
<i>Buglossoides arvensis</i>	corn gromwell	I	
<i>Calochortus macrocarpus</i>	sagebrush mariposa lily	N	
<i>Carex douglasii</i>	Douglas sedge	N	
<i>Castilleja tenuis</i>	annual white paintbrush	N	

Attachment 1.
Vascular Plants Observed During Botanical Surveys

Scientific Name ¹	Common Name	Native or Introduced ²	Notes
<i>Centaurea diffusa</i>	diffuse knapweed	I	ODA Noxious Weed B List; Sherman County Class B
<i>Centaurea stoebe</i>	spotted knapweed	I	ODA Noxious Weed B List; Sherman County Class A
<i>Chaenactis douglasii</i>	dusty maiden	N	
<i>Chenopodium album</i>	lamb's quarters	I	
<i>Chenopodium leptophyllum</i>	slimleaf goosefoot	N	
<i>Chondrilla juncea</i>	rush skeletonweed	I	ODA Noxious Weed B List; Sherman County Class A
<i>Chorispora tenella</i>	purple mustard	I	
<i>Chrysothamnus viscidiflorus</i>	green rabbitbrush	N	
<i>Cirsium arvense</i>	canada thistle	I	ODA Noxious Weed B List; Sherman County Class B
<i>Cirsium undulatum</i>	wavyleaf thistle	I	Sherman County Class C
<i>Cirsium vulgare</i>	bull thistle	I	ODA Noxious Weed B List; Sherman County Class C
<i>Clarkia pulchella</i>	deerhorn clarkia	N	
<i>Claytonia perfoliata</i>	miner's lettuce	N	
<i>Claytonia rubra</i>	red-stem miner's lettuce	N	
<i>Clematis ligusticifolia</i>	western white clematis	N	
<i>Collinsia parviflora</i>	maiden blue eyed Mary	N	
<i>Collomia grandiflora</i>	large-flowered collomia	N	
<i>Convolvulus arvensis</i>	field bindweed	I	ODA Noxious Weed B List; Sherman County Class B
<i>Conyza canadensis</i>	horseweed	N	Sherman County Class C
<i>Cornus sericea</i>	red osier dogwood	N	
<i>Crepis artribarba</i>	slender hawksbeard	N	
<i>Crepis bakeri</i>	Baker's hawksbeard	N	
<i>Crocidium multicaule</i>	spring gold	N	
<i>Delphinium sp</i>	larkspur	N	
<i>Descurainia sophia</i>	flixweed	I	
<i>Dipsacus fullonum</i>	wild teasel	I	
<i>Draba verna</i>	spring whitlow-grass	I	
<i>Elymus elymoides</i>	bottlebrush squirrel tail	N	
<i>Elymus repens</i>	quackgrass	I	

Attachment 1.
Vascular Plants Observed During Botanical Surveys

Scientific Name ¹	Common Name	Native or Introduced ²	Notes
<i>Epilobium brachycarpum</i>	tall annual willowherb	N	
<i>Epilobium ciliatum</i>	fringed willowherb	N	
<i>Epilobium densiflorum</i>	dense-flower spike-primrose	N	
<i>Ericameria nauseosa</i>	rubber rabbitbrush	N	
<i>Erigeron filifolius</i>	fleabane	N	
<i>Erigeron linearis</i>	desert yellow fleabane	N	
<i>Erigeron pumilus</i>	shaggy fleabane	N	
<i>Eriocoma thurberianum</i>	Thurber's needlegrass	N	
<i>Eriogonum heracleoides</i>	parsnip-flower wild buckwheat	N	
<i>Eriogonum sphaerocephalum</i>	rock buckwheat	N	
<i>Eriogonum strictum</i> var <i>proliferum</i>	proliferous buckwheat	N	
<i>Eriogonum thymoides</i>	thyme wild buckwheat	N	
<i>Eriophyllum lanatum</i>	Oregon sunshine	N	
<i>Erodium cicutarium</i>	redstem storksbill	I	
<i>Erythranthe guttata</i>	common monkeyflower	N	
<i>Festuca idahoensis</i>	Idaho fescue	N	
<i>Fritillaria pudica</i>	yellow bells	N	
<i>Gaillardia aristata</i>	blanket flower	N	
<i>Galium aparine</i>	common bedstraw	N	
<i>Gnaphalium palustre</i>	lowland cudweed	N	
<i>Holosteum umbellatum</i>	jagged chickweed	I	
<i>Hordeum murinum</i>	mouse barley	I	
<i>Hydrophyllum capitatum</i>	waterleaf	N	
<i>Hypericum perforatum</i>	common St. John's wort	I	ODA Noxious Weed B List; Sherman County Class C
<i>Idahoa scapigera</i>	flatpod	N	
<i>Juncus balticus</i>	Baltic rush	N	
<i>Juncus effusus</i>	pasture rush	N	
<i>Juniperus occidentalis</i>	western juniper	N	
<i>Lactuca serriola</i>	prickly lettuce	I	Sherman County Class C
<i>Lagophylla ramosissima</i>	slender hareleaf	N	

Attachment 1.
Vascular Plants Observed During Botanical Surveys

Scientific Name ¹	Common Name	Native or Introduced ²	Notes
<i>Lamium amplexicaule</i>	common deadnettle	I	
<i>Lepidium campestre</i>	field pepperweed	I	
<i>Lepidium draba</i>	heart-podded hoary cress	I	ODA Noxious Weed B List; Sherman County Class B
<i>Lepidium latifolium</i>	perennial pepperweed	I	ODA Noxious Weed B List; Sherman County Class C
<i>Lepidium perfoliatum</i>	clasping pepperweed	I	
<i>Leymus cinereus</i>	Great basin wild rye	N	
<i>Linaria dalmatica</i>	Dalmatian toadflax	I	ODA Noxious Weed B List; Sherman County Class B
<i>Linum lewisii</i>	wild blue flax	N	
<i>Lithophragma parviflorum</i>	small-flowered woodland-star	N	
<i>Lithospermum ruderale</i>	western stone seed	N	
<i>Lomatium canbyi</i>	Canby's lomatium	N	
<i>Lomatium nudicaule</i>	barestem biscuitroot	N	
<i>Lomatium papilioniferum</i>	butterfly-bearing biscuitroot	N	
<i>Lomatium triternatum</i>	nineleaf biscuitroot	N	
<i>Lupinus argenteus</i>	silvery lupin	N	
<i>Lupinus lepidus</i> var. <i>aridus</i>	dry ground lupine	N	
<i>Lupinus leucophyllus</i>	velvet lupin	N	
<i>Madia exigua</i>	tarweed	N	
<i>Madia gracilis</i>	tarweed	N	
<i>Medicago sativa</i>	alfalfa	I	
<i>Mentzelia dispersa</i>	bushy blazingstar	N	
<i>Micranthes fragosa</i>	brittle-leaf saxifrage	N	
<i>Montia fontana</i>	annual water miner's-lettuce	N	
<i>Montia linearis</i>	narrowleaf miner's-lettuce	N	
<i>Navarretia intertexta</i>	needle-leaf pincushion-plant	N	
<i>Nemophila pedunculata</i>	littlefoot nemophila	N	
<i>Onobrychis vicifolia</i>	common sainfoin	I	
<i>Onopordum acanthium</i>	Scotch thistle	I	ODA Noxious Weed B List; Sherman County Class B
<i>Perideridia gardineri</i>	Gairdner's yampah	N	

Attachment 1.
Vascular Plants Observed During Botanical Surveys

Scientific Name ¹	Common Name	Native or Introduced ²	Notes
<i>Phacelia hastata</i>	silverleaf phacelia	N	
<i>Phacelia linearis</i>	thread-leaf phacelia	N	
<i>Phalaris arundinacea</i>	reed canarygrass	I	
<i>Philadelphus lewisii</i>	mock orange	N	
<i>Phlox longifolia</i>	longleaf phlox	N	
<i>Phoenicaulis cheiranthoides</i>	daggerpod	N	
<i>Plectritis macrocera</i>	longhorn plectritis	N	
<i>Poa bulbosa</i>	bulbous bluegrass	I	
<i>Poa pratensis</i>	Kentucky bluegrass	I	
<i>Poa secunda ssp. juncifolia</i>	alkali bluegrass	N	
<i>Poa secunda ssp. secunda</i>	Canby's bluegrass	N	
<i>Polemonium micranthum</i>	annual Jacob's-ladder	N	
<i>Polygonum aviculare</i>	prostrate knotweed	I	
<i>Polypogon monspeliensis</i>	rabbitfoot grass	I	
<i>Potentilla gracilis</i>	cinquefoil	N	
<i>Primula conjugens</i>	shooting star	N	
<i>Pseudoroegneria spicata</i>	bluebunch wheatgrass	N	
<i>Ranunculus glaberrimus</i>	sagebrush buttercup	N	
<i>Rhaponticum repens</i>	Russian knapweed	I	ODA Noxious Weed B List; Sherman County Class B
<i>Rosa woodsii</i>	Wood's rose	N	
<i>Rumex crispus</i>	curly dock	I	
<i>Rumex triangulivalvis</i>	white willow dock	N	
<i>Salsola tragus</i>	Russian thistle	I	Sherman County Class C
<i>Sambucus cerulea</i>	blue elderberry	N	
<i>Sanguisorba annua</i>	western burnet	I	
<i>Secale cereale</i>	rye	I	Sherman County Class C
<i>Senecio serra</i>	tall ragwort	N	
<i>Sidalcea oregana</i>	Oregon checkermallow	N	
<i>Sisymbrium altissimum</i>	tumble mustard	I	
<i>Stephanomeria tenuifolia</i>	narrow-leaved wirelettuce	N	

Attachment 1.
Vascular Plants Observed During Botanical Surveys

Scientific Name ¹	Common Name	Native or Introduced ²	Notes
<i>Taeniatherum caput-medusae</i>	medusahead	I	ODA Noxious Weed B List; Sherman County Class C
<i>Taraxacum officinale</i>	common dandelion	I	
<i>Tetradymia canescens</i>	grey horsebrush	N	
<i>Thinopyrum intermedium</i>	intermediate wheatgrass	I	
<i>Thinopyrum ponticum</i>	tall wheatgrass	I	
<i>Tragopogon dubius</i>	yellow salsify	I	
<i>Trifolium cyathiferum</i>	cup clover	N	
<i>Triteleia grandiflora</i>	large-flowered triteleia	N	
<i>Triticum aestivum</i>	wheat	I	
<i>Typha latifolia</i>	broad-leaf cattail	N	
<i>Ventenata dubia</i>	North Africa grass / ventenata	I	ODA Noxious Weed B List
<i>Verbascum blattaria</i>	moth mullein	I	
<i>Verbascum thapsus</i>	common mullein	I	
<i>Verbena bracteata</i>	bracted vervain	N	
<i>Veronica americana</i>	American brooklime	N	
<i>Veronica anagallis-aquatica</i>	water speedwell	I	
<i>Vicia villosa</i> var. <i>villosa</i>	hairy vetch	I	
<i>Vulpia bromoides</i>	brome fescue	I	
<i>Vulpia microstachys</i>	small fescue	N	
<i>x Aegilotriticum sancti-andreae</i>	hybrid goatgrass	I	
1. Nomenclature follows the Oregon Vascular Plant Checklist, as used by OregonFlora (https://oregonflora.org/). 2. N=Native, I=Introduced.			

Attachment 2. Site Photographs



Photo 1. Field bindweed growing with perennial bunch grasses. Date: 7/23/2024. Lat/Long: 45.3607, -120.6745.



Photo 2. Field bindweed on edge of tilled field. Date: 7/23/2024. Lat/Long: 45.3435, -120.6633.



Photo 3. Perennial pepperweed. Date: 7/23/2024. Lat/Long: 45.3491, -120.6605.



Photo 4. Large occurrence of Scotch thistle in southwestern region of the Survey Area. Date: 7/23/2024. Lat/Long: 45.3528, -120.7322.



Photo 5. Diffuse knapweed along road. Date: unknown. Lat/Long: 45.3880, -120.6581.



Photo 6. Canada thistle in bloom. Date: 7/25/2024. Lat/Long: 45.3750, -120.6893.



Photo 7. Russian thistle growing along road. Date: 7/25/2024. Lat/Long: 45.3869, -120.6876.



Photo 8. Cereal rye covering hillside. Date: 7/25/2024. Lat/Long: 45.4265, -120.7136.



Photo 9. Prickly lettuce in field of medusahead. Date: unknown. Lat/Long: 45.3968, -120.6847.



Photo 10. Canada thistle along edge of agricultural land. Date: unknown. Lat/Long: 45.3953, -120.6793.



Photo 11. High density patch of bull thistle. Date: unknown. Lat/Long: 45.4051, -120.6936.



Photo 12. Prickly lettuce along edge of road. Date: 7/26/2024. Lat/Long: 45.3636, -120.7000.



Photo 13. Medusahead occurs in sparse to high abundance throughout the Project Area, forming dense thatches in disturbed areas. 7/2/2025. Lat/Long: 45.3405116, -120.7770577.



Photo 14. Prickly lettuce is found in frequent small populations and is commonly associated with other nonnative species, including tumble mustard. 7/16/2025. Lat/Long: 45.29959737, -120.7900141.



Photo 15. Prickly lettuce occurs at the highest density along agricultural fields. 7/16/2025. Lat/Long: 45.29801632, -120.7969638.



Photo 16. Russian thistle is primarily found along agricultural edges. 7/16/2025. Lat/Long: 45.29712769, -120.7971416.



Photo 17. *Ventenata* is present throughout the southern sections of the Project Area, with the highest density around wetlands and drainages. 7/2/2025. Lat/Long: 45.27717272, -120.8395493.



Photo 18. A dense patch of *ventenata* occurs around a wetland feature. 7/2/2025. Lat/Long: 45.27717272, -120.8395493.



Photo 19. *Ventenata* is also scattered in the upland grassland areas. 7/17/2025. Lat/Long: 45.28365721, -120.7661145.



Photo 20. Canada thistle is observed in high abundance near wetland features. 7/2/2025. Lat/Long: 45.34163728, -120.7885951.



Photo 21. Scotch thistle occurs in several isolated populations. 6/29/2025. Lat/Long: 45.27379112, -120.7660719.



Photo 22. Russian knapweed occurs in several isolated populations. 7/18/2025. Lat/Long: 45.27223187, -120.706517.



Photo 23. Only one location of dalmatian toadflax, with three individuals, was observed within the Project Area. 7/16/2025.. Lat/Long: 45.2903992, -120.8022335.



Photo 24. A few scattered occurrences of dense jointed goatgrass occur along agricultural edges. 7/1/2025. Lat/Long: 45.30092299, -120.7776477.



Photo 25. Planted grasslands contain alfalfa, bluebunch wheatgrass, and nonnative annual grasses, including cheatgrass and medusahead. 6/30/2025. Lat/Long: 45.28419667, -120.8128767.

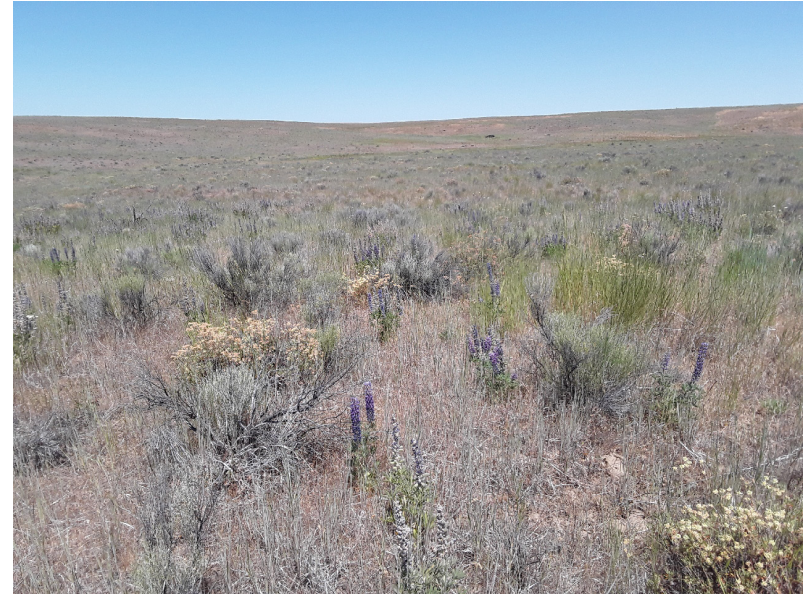


Photo 26. Shrublands include rubber rabbitbrush, buckwheat and lupin. 6/30/2025. Lat/Long: 45.30434, -120.784465.



Photo 27. The Project Area contains some habitat with thin, rocky soil dominated by Canby's bluegrass, several buckwheat species, and nonnative annual grasses. 7/2/2025. Lat/Long: 45.25993333, -120.8392483.



Photo 28. The southwest sections of the Project Area include the top slopes of canyon features with vegetation including Carey's balsamroot, several buckwheat and Astragalus species. 7/3/2025. Lat/Long: 45.28005833, -120.8777083.

Bat Acoustic Survey Report

**Speedway Energy Facility
March 2026**

**Prepared for
BGTF Speedway Project LLC**

Prepared by:



TETRA TECH

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Appendix A. Hardware and Software Parameters and Settings

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1.0 Introduction

BGTF Speedway Project LLC (BGTF) is planning to develop the Speedway Energy Facility (Project) in Sherman County, Oregon (Figure 1). The Project consists of approximately 23,936 acres of private land in central Sherman County (Survey Area).

BGTF¹ contracted Tetra Tech to perform acoustic monitoring surveys to assess the use of the Survey Area by resident and migratory bat species during the spring migration, summer, and fall migration periods in 2025 (March 1 – November 15). This report provides background information on the habitats and bat species that may occur in the Survey Area and the results of the 2025 acoustic monitoring surveys. The Survey Area shown in Figure 1 reflects the site boundary in the Project's preliminary Application for Site Certificate. The survey evaluated how resident and migratory bat species use the Survey Area, in accordance with the U.S. Fish and Wildlife Service (USFWS) Land-Based Wind Energy Guidelines (WEG's)(USFWS 2012). This acoustic bat survey report includes the following Project-specific components:

1. Brief overview of bat habitat,
2. Description of bat species that may occur in the area,
3. Outline of applicable federal and state regulatory frameworks, and
4. Results of the acoustic monitoring survey.

1.1 Project Description

The Project is located in north-central Oregon within the Level III Columbia Plateau ecoregion, and almost entirely within the Level IV Umatilla Plateau ecoregion (Thorson et al. 2003). This Level IV ecoregion consists of rolling hills formed by thick loess deposits over basalt bedrock. Historically, the area supported extensive sagebrush steppe and grasslands, providing habitat for a diverse assemblage of wildlife adapted to semi-arid conditions. Today, most of the landscape has been converted to dryland agriculture, primarily wheat and barley, while some rugged areas, with thinner soil, remain rangeland and grassland habitat.

Sherman County is bordered by three major rivers: the Deschutes River to the west, the John Day River to the east, and the Columbia River to the north, located approximately 5 miles, 8 miles, and 17 miles from the nearest Project boundary, respectively. Smaller tributaries, such as Rosebush Creek, provide additional riparian corridors within or near the Survey Area. Protected lands in the region include the Lower Deschutes Wild and Scenic River, Cottonwood Canyon State Park, and the

¹ References to BGTF generally include or also refer to the parent company and predecessor in interest to the project, Brookfield Renewable N.A., except where specifically noted.

John Day Wilderness Study Area, located 5 to 10 miles east. These areas preserve native vegetation and offer important wildlife habitat in an otherwise agriculturally dominated landscape.

Suitable bat habitat is present within the Survey Area and surrounding region. Riparian corridors and intermittent streams provide seasonal water sources that support insect prey for foraging bats. Rocky outcrops along hillsides offer natural roosting opportunities, while human-made structures such as barns, culverts, and bridges associated with agricultural operations provide additional roost sites. Although the region is dominated by cropland, there are scattered patches of native vegetation and shelterbelts around fields and farmsteads. Planted pines (*Pinus sp.*), maple (*Acer sp.*), and willow (*Salix sp.*) trees are present with low cover in developed areas, along with rubber rabbitbrush, and the occasional western juniper (*Juniperus occidentalis*) observed in grasslands throughout the site that may also contribute to habitat diversity. Mature trees capable of providing bat roosting habitat are limited within the Survey Area. Seasonal rainfall and irrigation create temporary water sources that can further enhance foraging opportunities for bats.

1.2 Bat Species Expected to Occur in the Vicinity of the Project

Proper evaluation of the bat species that could occur at the Project facilitates the development of an appropriate species list to be used for the autoclassification software for acoustic analysis. Use of an inappropriate species list could result in spurious conclusions with the software identifying species outside the known range. In general, using acoustic analysis to identify out of range species should be avoided. The following sections were used to determine the correct species list for the Project.

Fifteen bat species are known to occur in Oregon, and of these species, 14 have the potential to occur in the Survey Area (Table 1) based on available information on known distribution ranges and documented occurrences in Sherman or surrounding counties (ODFW 2025). Twelve of the 14 species potentially occurring within Survey Area readily hibernate during the winter period. The two exceptions are the hoary bat and silver-haired bat described below. An extensive winter survey by Perkins et al. (1990) documented six of the potentially occurring *Myotis* species overwintering in mines and caves in Oregon, and big brown bats were commonly observed roosting in buildings. The greatest concentration of caves occurs in central Oregon and are formed by lava tubes. There are 105 underground abandoned mines in Sherman County that may provide suitable bat habitat (Oregon GEOHub 2023).

1.2.1 *Myotis* Bats

Bats of the genus *Myotis* are the most abundant group found in Oregon, and regional habitat use varies among these species (ODFW 2000). For example, western long-eared myotis (*Myotis evotis*) is typically associated with coniferous forests but can also occur in shrub steppe habitats (ODFW 2025), whereas western small-footed myotis (*Myotis ciliolabrum*) and canyon bat (*Parastrellus hesperus*) are found in drier habitats near cliff faces and rock outcroppings, features more common in the Columbia Plateau ecoregion. California myotis (*Myotis californicus*), little brown bat (*Myotis lucifugus*), and Yuma myotis (*Myotis yumanensis*) are typically associated with forests and open water. Fringed myotis (*Myotis thysanodes*) and long-legged myotis (*Myotis volans*) occur in a variety

of habitats, but both are also found in forested areas (Bat Conservation International 2025; ODFW 2025).

1.2.2 Canyon Bat

The canyon bat (*Parastrellus hesperus*) occurs in warm, arid habitats including cliffs, talus slopes, and rock outcrops, particularly within the Columbia Plateau. It is one of the smallest North American bats and typically roosts in narrow rock crevices in exposed desert landscapes. Rock outcrops and arid shrub-steppe within the Survey Area provide suitable habitat for this species.

1.2.3 Pallid Bat

The pallid bat (*Antrozous pallidus*) is closely associated with desert scrub and shrubland and is a common species of the Columbia Plateau. It is a large, ground-foraging species that specializes on terrestrial arthropods such as beetles, crickets, and scorpions (ODFW 2026). Pallid bats typically roost in rock crevices, cliff faces, and occasionally buildings. Although widespread, they are considered sensitive due to roost disturbance and limited winter habitat availability (ODFW 2026).

1.2.4 Big Brown Bat and Townsend's Big-eared Bat

Big brown bat (*Eptesicus fuscus*) and Townsend's big-eared bat (*Corynorhinus townsendii*) are widespread throughout the state but are not known to congregate in large numbers. Both species utilize caves, mines, and buildings as roost sites (Harvey et al. 2011).

1.2.5 Spotted Bat

The spotted bat (*Euderma maculatum*) is also geographically widespread but may be one of the rarest of all bat species in the western United States because the species relies on the presence of large cliffs for roosting, resulting in very patchy distributions (Luce and Keinath 2007).

1.2.6 Hoary Bat and Silver-haired Bat

The hoary bat (*Lasiurus cinereus*) and silver-haired bat (*Lasionycteris noctivagans*) do not typically hibernate, but instead migrate out of the Survey Area during the fall to spend the winter in locations where insect prey is available (ODFW 2025). These two species occur in the greatest abundance across Oregon rangelands in May and September, suggesting biannual migration through the state. These tree-roosting species experience higher levels of mortality at wind facilities, particularly during fall migration (Arnett et al. 2008). Roosting habitat of the hoary bat and silver-haired bat are all associated with forested areas (Harvey et al. 2011), which account for a small percentage of the Survey Area, and include planted pines, maple, willow, in developed areas and juniper trees scattered throughout.

Table 1. Potential Bat Species for the Survey Area

Common Name	Scientific Name	Migratory Status ^{1,2}	Habitat Associations ^{1,2}	Echolocation Frequency Category	State Status in the Columbia Plateau ³	Federal Status ⁴
Big brown bat	<i>Eptesicus fuscus</i>	Non-migratory	Deciduous forests, and other habitats including agricultural croplands. Roosts in tree cavities, under loose bark, buildings, mines, bridges/culverts, caves, and crevices in cliff faces.	Low Frequency	–	–
California myotis ⁵	<i>Myotis californicus</i>	Unknown	Typically associated with forests and will use large snags as day roosts and can be found night-roosting under bridges.	High Frequency	SGCN	–
Canyon bat	<i>Parastrellus hesperus</i>	Non-migratory	Found in riparian areas with sparse vegetation, rocky canyons, cliffs, and outcroppings. Roosts in small crevices of cliffs and caves.	High Frequency	SGCN	–
Fringed myotis ⁶	<i>Myotis thysanodes</i>	Regional Migrant	Found in a wide variety of habitats including desert scrublands, montane conifer forests, and oak woodlands. Roosts in trees, snags, buildings, cave, rocks, cliffs, and bridges.	High Frequency	–	–
Hoary bat	<i>Lasiurus cinereus</i>	Long-distance Migrant	Found in forested upland habitats, including junipers. Roosts in foliage of trees.	Low Frequency	SGCN, S	DR
Little brown bat/Little brown myotis	<i>Myotis lucifugus</i>	Regional Migrant	Found in a wide variety of forested habitats, as well as farm fields, forest edges, and urban areas. Roosts in buildings, trees, rock or wood piles, and occasionally caves.	High Frequency	SGCN	DR
Long-legged myotis ⁵	<i>Myotis volans</i>	Regional Migrant	Typically found in coniferous forests but can occur in desert and riparian habitats.	High Frequency	SGCN	–
Pallid bat	<i>Antrozous pallidus</i>	Non-migratory	Caves/karst, desert scrub, grassland, and shrubland.	Low Frequency	SGCN, S	–

Common Name	Scientific Name	Migratory Status ^{1,2}	Habitat Associations ^{1,2}	Echolocation Frequency Category	State Status in the Columbia Plateau ³	Federal Status ⁴
Silver-haired bat	<i>Lasionycteris noctivagans</i>	Long-distance Migrant	Found in northern temperate conifer and mixed conifer-hardwood forest. Generally found in association with riparian areas.	Low Frequency	SGCN, S	–
Spotted bat	<i>Euderma maculatum</i>	Regional Migrant	Uses crevices in cliffs, caves and canyon walls for day and nights roosts. Will also roost in trees at night and typically forage in meadows, shrub-steep, or water sources.	Low Frequency	SGCN, S	–
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	Regional Migrant	Roosts in natural caves, mines, and buildings in the summer. Hibernates October to April in caves and mines.	Low Frequency	SGCN, SC	–
Western long-eared myotis	<i>Myotis evotis</i>	Regional Migrant	Typically found in coniferous forests but can occur in shrub-steppe regions. Forages mainly in forests or adjacent to creeks.	High Frequency	SGCN	–
Western small-footed myotis	<i>Myotis ciliolabrum</i>	Regional Migrant	Found in dry climates, particularly near cliffs and rock outcroppings. Forages near cliff faces and hibernates in caves and mines.	High Frequency	SGCN	–
Yuma myotis	<i>Myotis yumanensis</i>	Regional Migrant	Strong relationship with open water, and forages primarily near/over streams and ponds.	High Frequency	SGCN	–
1. ODFW 2025. 2. Bat Conservation International 2025. 3. SGCN = Species of Greatest Conservation Need (ODFW 2026); S = Sensitive, SC = Sensitive-Critical (ODFW 2021) 4. DR = Discretionary review (USFWS 2024) 5. This species is considered a Sensitive Species in other ecoregions in the state but not in the Columbia Plateau Ecoregion (ODFW 2021). 6. This species is considered a Species of Greatest Conservation Need and Sensitive Species in other ecoregions in the state but not in the Columbia Plateau Ecoregion (ODFW 2021, ODFW 2026).						

1.3 Regulatory Framework

1.3.1 Federal Protection

Of the 45 species of bats known to occur in the continental United States, eight species are currently listed as endangered or threatened and protected under the federal Endangered Species Act. None of these federally listed species are known to occur in Oregon (ODFW 2025). There are two species under USFWS discretionary review (Table 1) that have potential to occur in the Survey Area (USFWS 2024).

1.3.2 State Protection

The State of Oregon maintains a list of threatened and endangered species that is maintained by the Oregon Department of Fish and Wildlife (ODFW; ODFW 2024). No bats are currently listed as threatened or endangered in the state (ODFW 2024). In addition to state-listed species, ODFW monitors rare species and Species of Greatest Conservation Need (SGCN). SGCN are species with small or declining populations that are at risk of becoming extinct or are of management concern, and they are designated by ecoregion rather than at a statewide level (ODFW 2026). Species may also be included on the ODFW Sensitive Species List (ODFW 2021), which is essentially a subset of species identified as SGCN, under one of two designations: “Sensitive” or “Sensitive-Critical” (ODFW 2021). Per Oregon Administrative Rules 635-100-0040, the sensitive species designation is established for the purpose of prioritizing conservation actions to prevent species from becoming eligible for listing as threatened or endangered species. Of the 14 bat species potentially present in the Survey Area, five are considered Sensitive or Sensitive-Critical in the Columbia Plateau Ecoregion (Table 1).

2.0 Methods

Tetra Tech conducted bat acoustic monitoring in the Survey Area from March 31 to November 16, 2025, using five ground-based bat detectors (Figure 1). The objective was to assess bat occurrence and use of the Survey Area by local and migratory bat species. Tetra Tech designed the acoustic monitoring surveys at the Survey Area in accordance with the recommendations outlined within Tier 3 of the voluntary U.S. Fish and Wildlife Service (USFWS) Land Based Wind Energy Guidelines (USFWS 2012).

2.1 Acoustic Detectors

Tetra Tech used Wildlife Acoustics Song Meter SM4BAT Bioacoustic Recorder (acoustic detector) to record bat activity in full spectrum format. All detectors remained in the same locations for the duration of the acoustic monitoring survey. Skalak et al. (2012) suggest sampling for repeated number of nights at the same locations to increase the chance of detecting acoustically rare species,

which is also helpful to understand changes in seasonality of bat activity. Each bat detector station consisted of the acoustic detector with a SMM-U2 microphone, powered by a 12-volt battery charged by a solar panel. Tetra Tech programmed each bat detector to record bat echolocation sequences using the settings in Appendix A. The bat detectors recorded bat activity from 1 hour before sunset until 1 hour after sunrise each day. High-capacity data storage cards were exchanged twice per month by trained technicians and backed up on a secure, cloud-based server. The technicians also performed any necessary maintenance for each bat detector during data card exchanges.

Detector stations were chosen based on available bat habitat, land access, and representative habitat types found within the Survey Area (Table 2). Five ground-based detectors with ground microphones recorded bat activity for this survey. The ground microphones were elevated to approximately 10 feet to avoid vegetation and minimize environmental effects on the recorded files. Habitat descriptions for each detector station are provided in Table 2, and site photographs are in Appendix B.

Table 2. Summary Station Descriptions and Survey Effort, 2025

Detector Station	Description	Survey Nights	Detector Nights	Percent of Nights Operational
ORBH-01	Located within shrub/scrubland. A seasonal wetland is present. Adjacent hillsides are comprised of grasslands with thin bands of rocky outcroppings.	March 31–Nov 16, 2025	231	100
ORBH-02	Located within grasslands surrounded by a cattle pasture and homestead. Some trees are present along fence line where detector is located.	March 31 – August 29, 2025 September 2, 2025 –Nov 16, 2025	228	98.7
ORBH-03	Located within a wet draw amid shrub/scrub. Adjacent hillsides comprised of grasslands. Large seasonal pond present.	March 31– Oct 31, 2025	215	93.1
ORBH-04	Located within a wet draw amid shrub/scrub. Adjacent hillsides comprised of grasslands. Large seasonal pond present.	April 4– Oct 27, 2025	207	91.2
ORBH-05	Located on the hillside within grassland. Adjacent hillsides are comprised of shrub/scrubland.	April 4–Nov 16, 2025	227	100
Overall	–	–	1,108	96.6

2.2 Data Analysis

Bats emit pulses of high-frequency sound to navigate in their environment and search for prey. A single pulse (or call) is generally not helpful for identifying species. However, a series of pulses, also known as an echolocation sequence or bat pass, can more reliably be used to assign a species classification. Tetra Tech defines a “bat pass” as an echolocation sequence with two or more call pulses, with passes separated by two or more seconds (Loeb et al. 2015). The number of bat passes per detector-night (one microphone operational for one night equals one detector-night), $\pm$ standard error, is used to describe bat activity in this report.

Tetra Tech analyzed bat acoustic data collected in the Survey Area using a two-step process. First, data were filtered with a U.S. Fish and Wildlife Service (USFWS)-approved software program (USFWS 2025) to remove non-bat sounds and assign an initial species or group classification. Second, a subset of the data was manually reviewed and validated using the same software’s spectrogram platform to confirm species presence.

The Project acoustic data were processed using SonoBat Bat Call Analysis Software (SonoBat, Inc.; Version 30.2.20250526) with the Eastern Washington regional classifier, which includes species expected to occur in eastern Oregon. Classifiers were modified to reflect species with low to high potential to occur in the Survey Area (Table 1). A sensitivity level of “0 balanced/neutral” was applied in accordance with recommendations from USFWS (USFWS 2025). Detailed software settings are provided in Appendix A. SonoBat was also used for manual vetting because of its extensive reference library of known echolocation sequences and its robust spectrogram platform for reviewing full-spectrum calls.

During manual review, Tetra Tech considered a recording as suitable for species-level identification if: 1) the recording included search phase pulses, 2) the individual call pulses within the bat pass were not oversaturated, and when possible, 3) the individual call pulses included the presence of harmonics. Bat passes that did not have characteristics to allow classification to the species level by software programs were assigned a “No Identification” value. In the review process, Tetra Tech reclassified these files as “unidentified low-frequency bat” if the characteristic frequency was less than 35 kilohertz, or as “unidentified high-frequency bat” if the characteristic frequency was greater than or equal to 35 kilohertz. The unidentified low frequency category would include passes from low frequency bat species, and the unidentified high frequency bat species category would include passes from high frequency bat species. The appropriate echolocation frequency category (low or high) for each bat species is available in Table 1.

Manual vetting aimed to confirm at least one bat pass per detected species per station per month. Bat passes with fewer than five pulses were changed to the appropriate frequency group and not reviewed further. Auto-classifications of species with an elevated conservation status or species that typically occur outside the Survey Area received more thorough qualitative analysis (Table 1).

3.0 Results

3.1 Overall Activity

During the 2025 survey, 1,108 detector-nights (cumulative number of nights surveyed by all microphones) were sampled over the course of 231 calendar nights between March 31, 2025, and November 16, 2025 (Table 2). Station ORNH-03 and ORNH-04 experienced outages due to equipment malfunctions at these stations. The remaining stations remained operational throughout the survey period with no outages. A total of 61,378 bat passes were recorded and identified to the species level, resulting in an overall activity rate of 55.4 bat passes/detector-night (Table 3).

Table 3. Summary of Bat Passes Recorded During Acoustic Bat Monitoring Surveys at the Project, 2025

Station	Total # of Passes	Mean Activity Rate (Bat Passes/Detector Night)	Standard Error of Activity Rate
ORBH-01	48,410	209.6	20.0
ORBH-02	7,295	32.0	2.4
ORBH-03	2,054	9.6	2.2
ORBH-04	3,386	16.4	1.8
ORBH-05	233	1.0	0.1
Overall ¹	61,378	55.4	44.3
1. Represents cumulative values across all detectors in the Survey Area.			

3.2 Timing of Activity

Overall, the detectors recorded bat activity for the entire survey period, with the highest activity rates detected during April and May 2025 (Figure 2). Migratory species with the exception of the spotted bat, (California myotis, fringed myotis, hoary bat, little brown bat, western long-eared myotis, long-legged myotis, western small-footed myotis, Yuma myotis, and silver-haired bat) were recorded throughout the spring and fall, (Figures 3, 4, and 5) and accounted for more than 90 percent of all bat passes identified to species. The majority of identified migratory bat activity consisted of Yuma myotis (40 percent) and western small-footed myotis (36 percent), respectively. Four non-migratory species were documented within the Survey Area (Figure 6): pallid bat, Townsend's big-eared bat, canyon bat, and big brown bat. These species showed peak activity during June through September 2025. Additional big brown bat activity may be present in the low-frequency group.

The high-frequency group exhibited the most activity throughout the survey, with periods of high activity in April and May 2025 (Figure 2).

3.3 Species Presence and Activity Rates

Bat passes identified at the species level included 14 species and two groups. The recorded bat species are ordered by frequency of detection:

- Unidentified high-frequency bats (52.2 percent of the total passes recorded);
- Yuma myotis (18.3 percent);
- Western small-footed myotis (16.4 percent);
- California myotis (2.5 percent);
- Unidentified low-frequency bats (2.2 percent);
- Canyon bat (2 percent);
- Little brown bat (1.7 percent);
- Silver-haired bat (1.7 percent);
- Hoary bat (<1.0 percent);
- Western long-eared myotis (<1.0 percent);
- Big brown bat (<1.0 percent);
- Townsend's big-eared bat (<1.0 percent);
- Long-legged myotis (<1.0 percent);
- Pallid bat (<1.0 percent);
- Fringed myotis (<1.0 percent); and
- Spotted bat (<1.0 percent).

Species composition varied among stations (Table 4). Unidentified high-frequency bats had the greatest activity rate overall for all stations across the survey (Table 4). The calls in this group are of too low quality (i.e., too far away from the microphone, call characteristics obstructed by insect noise, few echolocation pulses) for confident identification of species. However, the activity for this group likely follows the proportion of the identified high-frequency species (Yuma myotis > western small-footed myotis > California myotis > canyon bat > little brown bat > long-legged myotis).

Of the identified species, the Yuma myotis had the greatest overall mean activity rate of 10.1 bat passes per detector-night (Table 4).

Table 4. Mean Bat Passes per Detector-night with Standard Error by Date of Bat Species at All Detector Stations, 2025

Station	Pallid Bat ¹	Big Brown Bat ¹	Townsend's big-eared bat ¹	Hoary Bat ¹	Silver-haired Bat ¹	California Myotis ¹	Western Small-footed Myotis ¹	Little Brown Bat ¹	Fringed Myotis ¹	Long-legged Myotis ¹	Yuma Myotis ¹	Canyon Bat ¹	Western Long-eared Myotis ¹	Spotted Bat ¹	Unidentified High Frequency Species	Unidentified Low Frequency Species
ORBH-01	0.1	1.0	0.1	0.7	1.4	4.9	38.7	1.1	< 0.1	0.2	37.4	3.8	0.3	0.0	117.6	2.2
ORBH-02	< 0.1	0.4	< 0.1	0.9	1.3	1.7	2.3	1.1	0.1	0.3	7.6	1.5	1.6	<0.1	10.2	2.0
ORBH-03	0.0	< 0.1	0.0	0.4	0.9	0.0	< 0.1	2.3	0.0	0.1	1.2	< 0.1	0.0	0.0	3.7	0.8
ORBH-04	< 0.1	< 0.1	0.0	0.4	0.9	< 0.1	2.6	0.3	0.0	<0.1	2.7	< 0.1	0.0	0.0	8.4	0.7
ORBH-05	0.0	< 0.1	0.0	0.2	0.3	0.0	0.2	< 0.1	0.0	0.0	< 0.1	< 0.1	0.0	0.0	< 0.1	0.3
Overall Mean and Standard Error	< 0.1 (<0.1)	0.3 (< 0.1)	0.2 (< 0.1)	0.5 (< 0.1)	1.0 (0.1)	1.4 (0.2)	9.2 (0.8)	1.0 (0.3)	< 0.1 (<0.1)	0.1 (< 0.1)	10.1 (1.4)	1.2 (0.2)	0.4 (< 0.1)	<0.1 (<0.1)	29.3 (3.5)	1.2 (0.1)

1. Species manually confirmed.

4.0 Discussion

Tetra Tech confirmed the presence of 14 bat species and two frequency groups through acoustic monitoring during the 2025 survey using low altitude microphone stations placed in representative habitat, with an overall bat activity rate of 55.4 bat passes per detector-night. Tetra Tech confirmed one species under USFWS discretionary review (the hoary bat) as present. Eight confirmed species (California myotis, fringed myotis, little brown bat, western long-eared myotis, long-legged myotis, spotted bat, western small-footed myotis, and Yuma myotis) are regional migrants, two species (hoary bat and silver-haired bat) are considered long-distance migrants, and four species (big brown bat, canyon bat, pallid bat, and Townsend's big-eared bat) are non-migratory (Fleming and Eby 2003). The relatively homogenous Survey Area consists of sparse sagebrush scrubland and cultivated cropland, with little suitable bat habitat present. Sparsely planted pines, maple, willow, and juniper trees are present in the Survey Area and may provide marginal roosting habitat, while cattle ponds interspersed throughout the Survey Area potentially provide foraging and drinking opportunities. Some rocky outcroppings that could provide suitable roosting habitat occur within the Survey Area, but the majority of this habitat type exists outside of the Survey Area in French Canyon (west of Project) and Finnegan Creek (south of Project).

Station ORBH-01 recorded the highest number of bat passes among all detector stations (Table 3), likely due to its location in sagebrush/scrub habitat with minimal tall vegetation, a seasonal pool, and adjacent cliff faces in Finnegan Creek. Activity at this site (210 passes/detector night) was substantially higher than at other stations (1-32 passes/detector night; Table 3). Overall patterns—including an April to May peak, a sharp decline through summer, and a brief increase in September—suggest that reduced resident (non-migratory) bat activity occurs in the area during summer months, while activity for most species occurred during migratory periods.

During this study, Tetra Tech conducted acoustic surveys based on the recommendations in the WEGs. Most bat activity recorded during the 2025 survey period was from regional migrants (Yuma myotis and western small-footed myotis; Table 4). Yuma myotis showed continuous activity with a peak in April and May, while western small-footed myotis was active throughout the season with a pronounced increase in September. These patterns, along with limited suitable roosting habitat within the Survey Area, suggest that activity within the Survey Area may be more associated with migration rather than local residency.

Table 5. Percent Composition of Bat Fatality Incidents for the Most Commonly Detected Species in the USFWS Pacific Region

Species	Percent Composition of Fatalities
Hoary Bat	47.1
Silver-haired Bat	44.6
Big Brown Bat	1.3
Little Brown Bat	2.5

Species	Percent Composition of Fatalities
Unidentified Bat	4.5
Source: AWWI 2020.	

Approximately 92 percent of all fatalities at wind projects across the Pacific Region documented in the American Wind and Wildlife Information Center database are represented by the long-distance migratory species identified in this survey (hoary bat, and silver-haired bat; Table 5; AWWI 2020), and occur most frequently during migratory periods in late summer and early fall (Kunz et al. 2007, Arnett et al. 2008, Strickland et al. 2011, Arnett et al. 2016, AWWI 2020). This acoustic monitoring survey detected these long-distance migrants at relatively low levels, while the overwhelming majority of the bat activity documented at the Project were attributed to regional migrants (i.e., *Myotis* species), which are not frequently detected as fatalities at wind energy projects (Table 5).

5.0 References

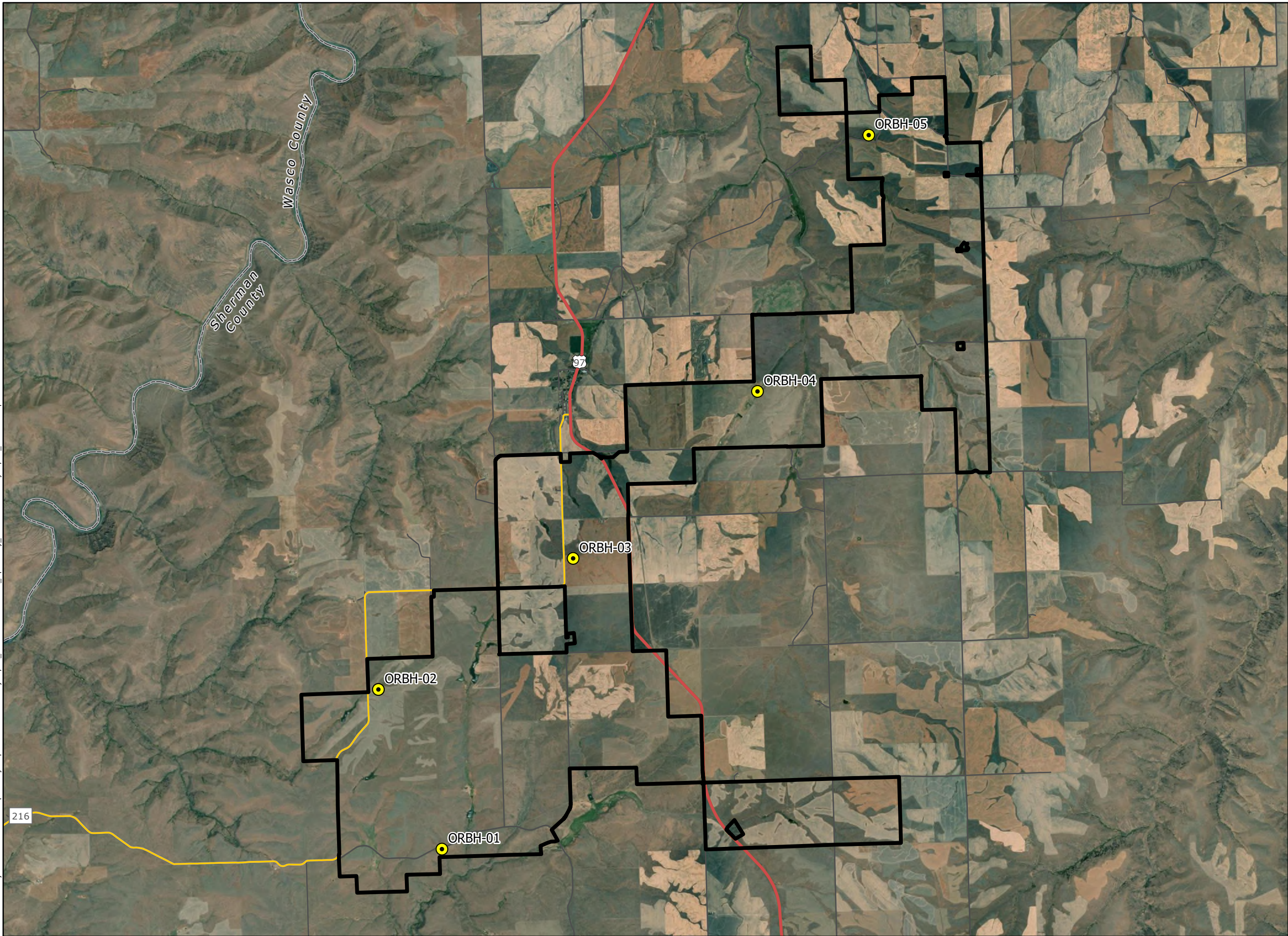
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Figures

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Speedway Energy Facility

Figure 1
Project Location
and Bat Acoustic
Detector Locations

SHERMAN COUNTY, OR

-  Survey Area
-  Bat Detector Location
-  County Boundary
-  US Highway
-  State Highway
-  Local Roads



Reference Map



1:88,000

WGS 1984 UTM Zone 10N

0 1 2 4 6 8 Miles

NOT FOR CONSTRUCTION

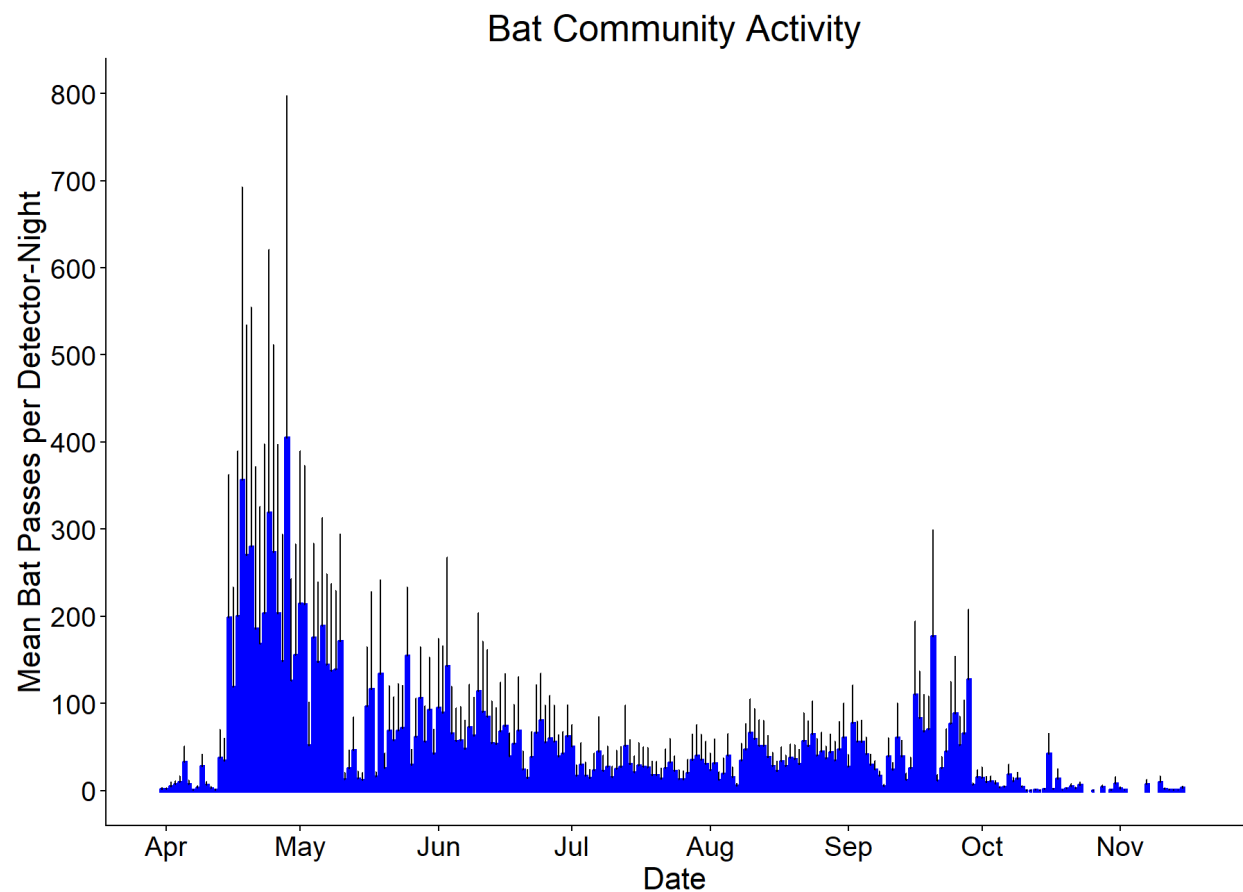


Figure 2. Mean Number of Bat Passes per Detector-Night with Standard Error by Date at all Detectors, 2025.

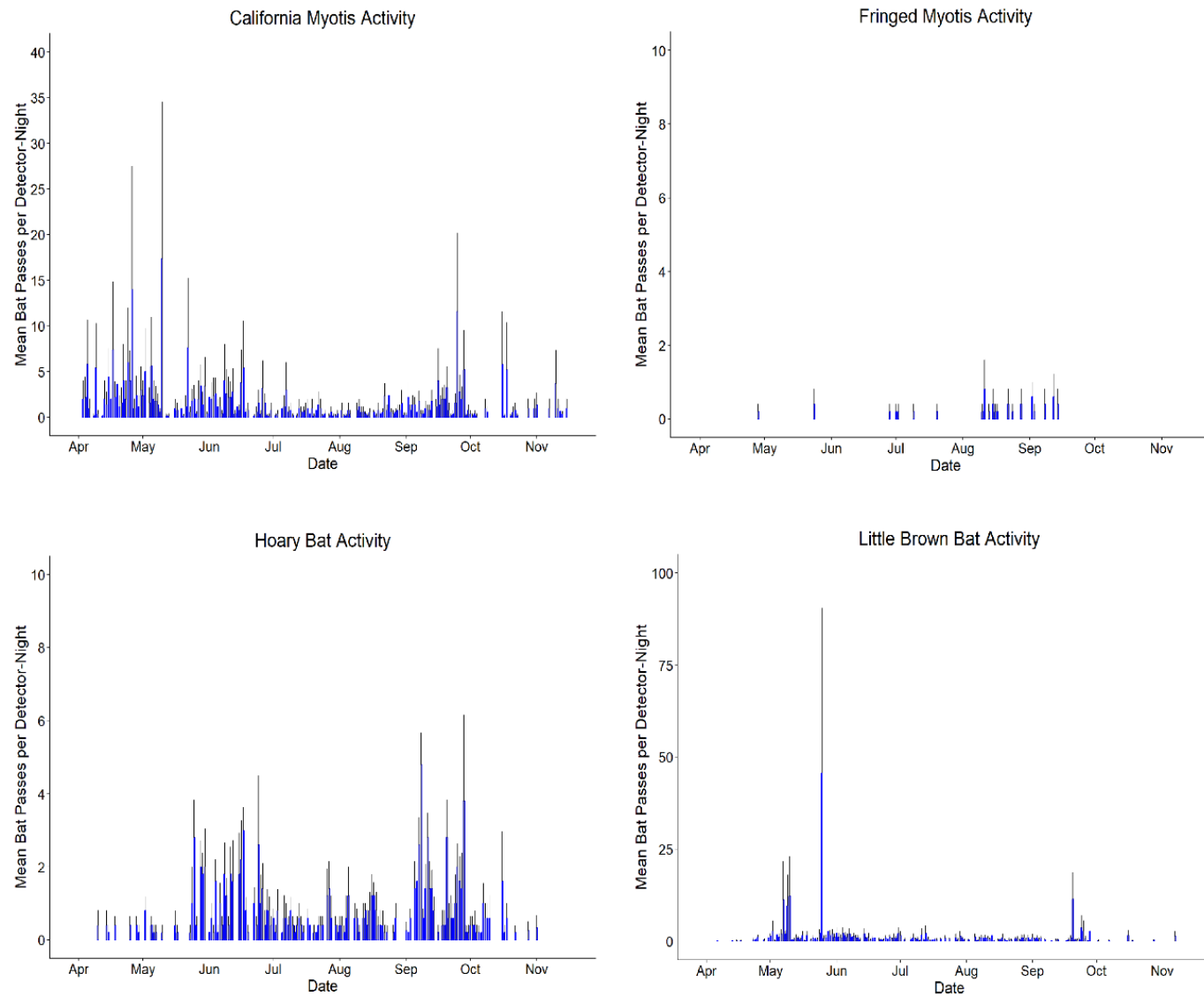


Figure 3. Mean Number of Migratory Bat Passes/Detector-Night at All Detector Stations with Standard Error by Date (2025) Part 1

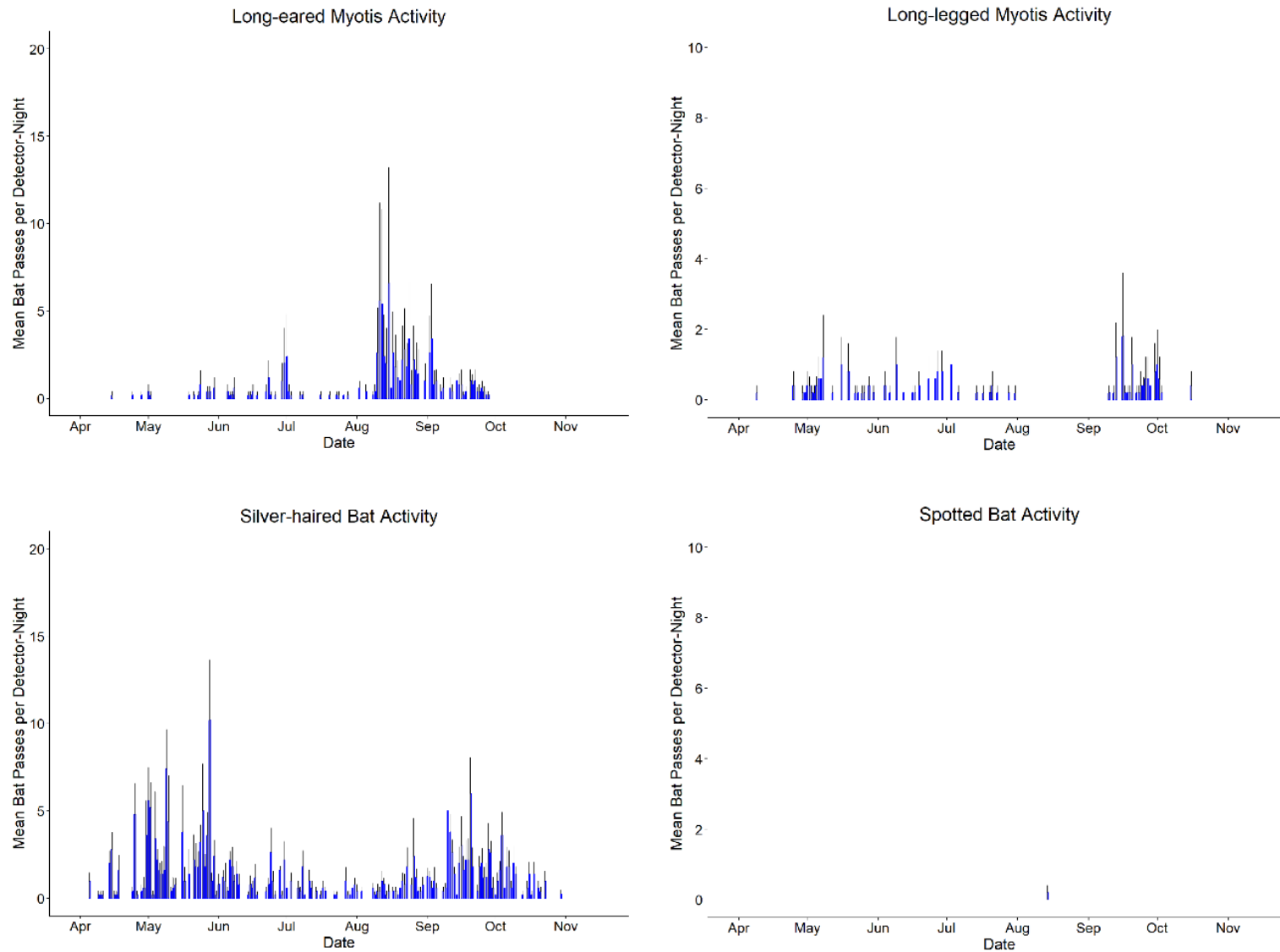


Figure 4. Mean Number of Migratory Bat Passes/Detector-Night at All Detector Stations with Standard Error by Date (2025) Part 2

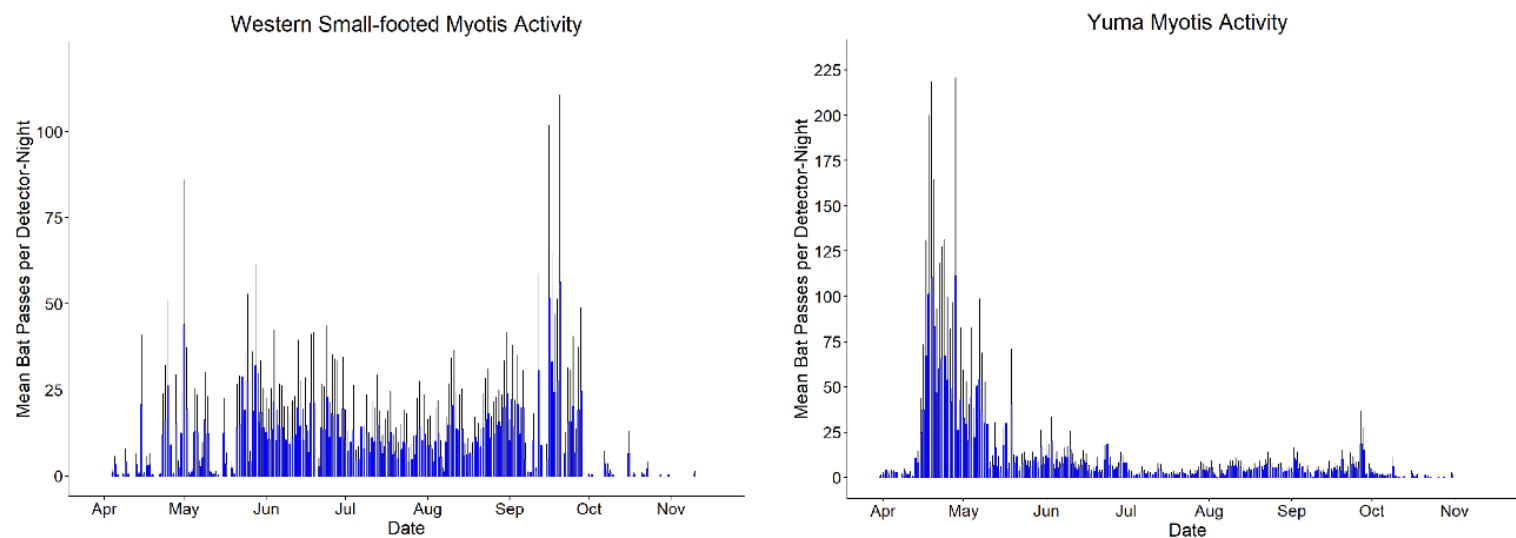


Figure 5. Mean Number of Migratory Bat Passes/Detector-Night at All Detector Stations with Standard Error by Date (2025) Part 3

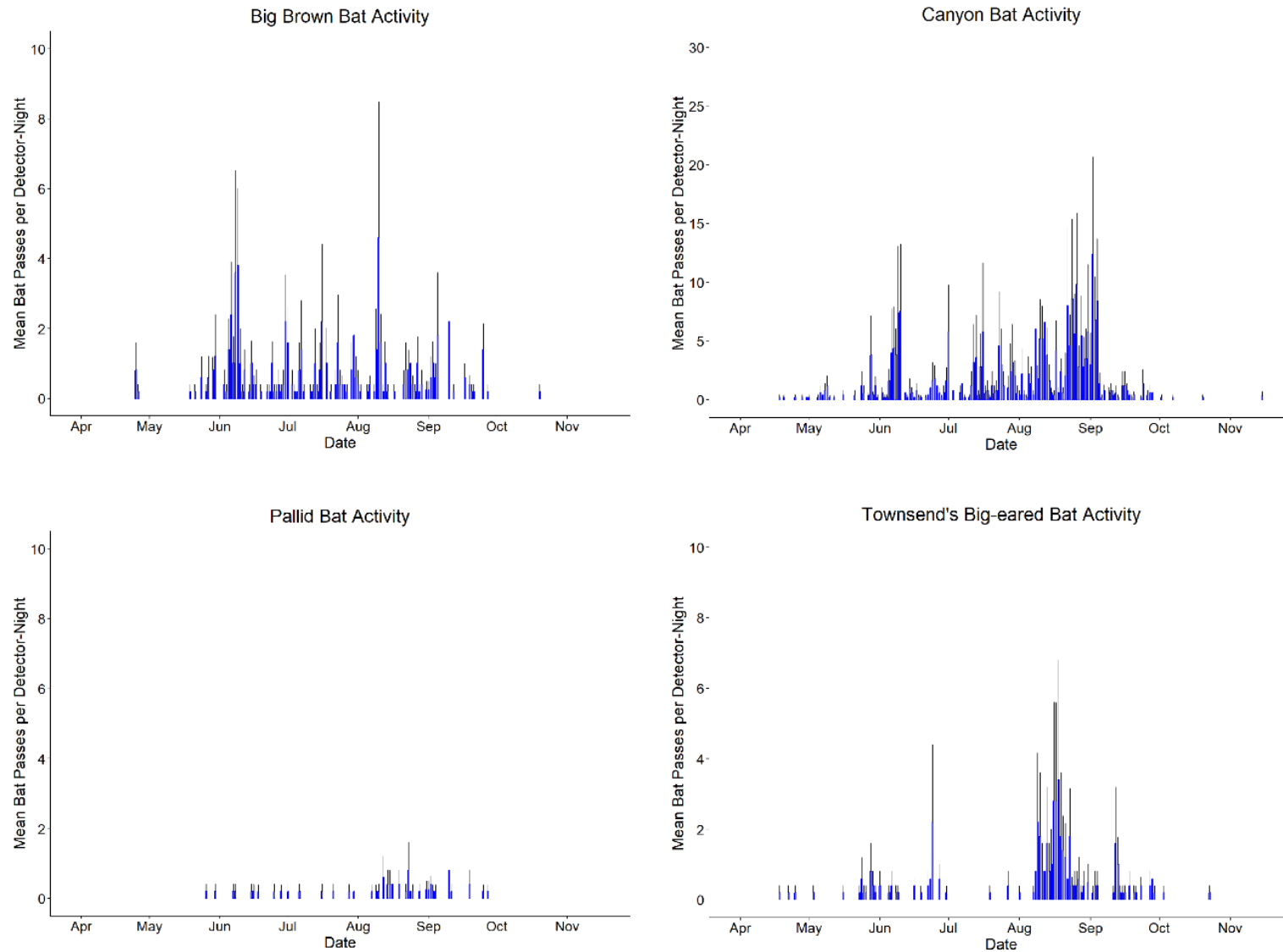


Figure 6. Mean Number of Non-Migratory Bat Passes/Detector-Night at All Detector Stations with Standard Error by Date (2025)

Appendix A. Hardware and Software Parameters and Settings

Platform	Parameter	Setting
Hardware		
SM4BAT	Data type	Full spectrum
	Trigger window	2 seconds
	Trigger max	15 seconds
	Sampling rate	256,000
	Gain	12 decibels
	Minimum trigger frequency	16 kilohertz
	File format	.WAV
	Survey window	1 hour before sunset to 1 hour after sunrise
Software		
SonoBat	Software version	30.2.20250526
	Classifier version	Pacific Northwest: Eastern Washington

Appendix B. Site Photographs



Station: ORBH-01

Date: March 31, 2025

Description: The detector was placed in gently sloping hills with low vegetation consisting of sagebrush and grasses. To the right of the detector (not pictured) is a seasonal cow pond. A flyway from cliff face is present to the left of the detector at a distance. The microphone was elevated to 10 feet.



Station: ORBH-02

Date: March 31, 2025

Description: The detector was placed in low vegetation consisting of grasses, with a few trees close by. Adjacent to the detector is a homestead and grazing pasture. The microphone was elevated to 10 feet.



Station: ORBH-03

Date: March 31, 2025

Description: The detector was placed near sloping hills and within low vegetation consisting of grasses and perineal plants. A large seasonal pond is approximately 25 feet away. The microphone was elevated to 10 feet.



Station: ORBH-04

Date: April 4, 2025

Description: The detector was placed in low vegetation consisting of grasses, perennial plants, and sagebrush. A seasonal pond is approximately 50 feet away. The microphone was elevated to 10 feet.



Station: ORBH-05

Date: April 4, 2025

Description: The detector was placed in low vegetation consisting of grasses and sagebrush. The microphone was elevated to 10 feet.

2025–2026 Eagle and Avian Use Surveys

Speedway Energy Facility
Sherman County, Oregon

May 2026



Prepared for
BGTF Speedway Project LLC
200 Liberty St., 14th Floor
New York, NY 10281

Prepared by
 **TETRA TECH**
1750 S Harbor Way, Suite 400
Portland, OR 97201



EXECUTIVE SUMMARY

Tetra Tech, Inc. was contracted by BGTF Speedway Project LLC (BGTF) to conduct eagle and avian use surveys for the proposed Speedway Energy Facility (Project) in Sherman County, Oregon. The studies were conducted to identify potential avian impacts associated with building and operating a wind energy facility in accordance with the voluntary U.S. Fish and Wildlife Service Land-based Wind Energy Guidelines, Stage 2 of the U.S. Fish and Wildlife Service Eagle Conservation Plan Guidance, and 2024 Eagle Rule Revision. Eagle and avian use surveys were conducted once a month at the Project from April 11, 2025, through March 5, 2026, at 800-meter radius point-count locations distributed throughout the 21,975-acre Project Area. A total of 17 point-count locations were surveyed for both eagle and avian use over the reporting period. Key results are summarized in Table ES-1.

A total of 8,753 birds from 88 species were observed during avian use surveys. Overall mean use for all avian species was 43.77 birds/20 minutes. Seasonal mean use was highest in fall 2025 with 74.12 birds/20 minutes. Songbirds had the highest mean use among non-raptors with 33.27 birds/20 minutes. The red-winged blackbird (*Agelaius phoeniceus*) had the highest mean use overall (8.78 birds/20 minutes; Table 3), comprising 20.1 percent of all birds observed during avian use surveys. Of the raptors observed, the red-tailed hawk (*Buteo jamaicensis*) had the highest mean use (0.31 birds/20 minutes; Table 3) and comprised 0.7 percent of all birds observed during avian use surveys.

Eleven golden eagles (*Aquila chrysaetos*) and 29 bald eagles (*Haliaeetus leucocephalus*) were observed within the Project Area during or incidentally to the eagle use surveys. Based on the number of observations during the 2025 – 2026 eagle and avian use surveys, the likelihood that bald and golden eagles will occur within the Project Area is high.

No state or federally listed threatened, endangered, or candidate species were detected during or incidental to the avian or eagle use surveys.

Table ES-1. 2025 – 2026 Eagle Use and Avian Use Summary for the Project Area

Variable	Result	Details
Eagle Use		
Bald eagles observed within the Project Area during eagle use surveys	22 observations	Section 3.1, Table 2
Bald eagle-minutes	6 minutes	Section 3.1, Table 2
Bald eagles observed within the Project Area incidentally to eagle use surveys	7 observations	Section 3.1, Table 7
Golden eagles observed within the Project Area during eagle use surveys	7 observations	Section 3.1, Table 2
Golden eagle-minutes	9 minutes	Section 3.1, Table 2
Golden eagles observed within the Project Area incidentally to eagle use surveys	4 observations	Section 3.1, Table 7
Avian Use		
Non-raptors		
Mean use	42.52 birds/20 minutes	Section 3.2.1.1
Federally listed ¹ species observed within the Project Area	No	Section 3.4
State listed species ² within the Project Area	No	Section 3.4
Raptors		
Mean use	1.25 birds/20 minutes	Section 3.2.1.2
Eagles observed during avian use surveys within the Project Area	Yes	Section 3.3
Federally listed ¹ species observed within the Project Area	No	Section 3.4
State listed species ² within the Project Area	No	Section 3.4

1/ Federally listed species include species listed as endangered or threatened under the Endangered Species Act. (USFWS [U.S. Fish and Wildlife Service]. 2024. Birds of Conservation Concern 2024. U.S. Department of the Interior, U.S. Fish and Wildlife Service, Migratory Birds. Updated March 2024. Accessed January 2026.)

2/ State listed species include species listed as endangered, threatened, or candidate in Oregon. (ODFW [Oregon Department of Fish and Wildlife]. 2024. Threatened, Endangered, and Candidate Fish and Wildlife Species. Accessed January 2026.)

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Figure 7.	Raptor Mean Use by Survey Point, April 2025 – March 2026

Acronyms and Abbreviations

BGTF	BGTF Speedway Project LLC
ECPG	Eagle Conservation Plan Guidance
PC	point-count (location)
Project	Speedway Energy Facility
Project Area	21,975 acres of private land in Sherman County, Oregon
RSA	rotor swept area
Tetra Tech	Tetra Tech, Inc.
USFWS	U.S. Fish and Wildlife Service

1.0 INTRODUCTION

Tetra Tech, Inc. (Tetra Tech) was contracted by BGTF Speedway Project LLC (BGTF)¹ to conduct eagle and avian use surveys for the proposed Speedway Energy Facility (Project) within Sherman County, Oregon. The Project Area is approximately 21,975 acres of privately owned land (Figure 1). These eagle and avian use surveys were conducted to quantify bird use at the Project during the survey period. This study objective and the standardized protocols used for avian surveys presented in this report are consistent with recommendations from the National Wind Coordinating Collaborative's Comprehensive Guide to Studying Wind Energy/Wildlife Interactions (Strickland et al. 2011), Tier 3 of the voluntary U.S. Fish and Wildlife Service (USFWS) Land-based Wind Energy Guidelines (USFWS 2012), Stage 2 of the USFWS Eagle Conservation Plan Guidance (ECPG; USFWS 2013), and 2024 Eagle Rule Revision (USFWS 2024a). This report covers the eagle and avian use surveys that were performed once a month from April 11, 2025, through March 5, 2026.

1.1 Project Area Description

The Project Area is located within the Columbia Plateau U.S. Environmental Protection Agency Level IV Ecoregion (Thorson et al. 2003). The majority of the land within the Project Area is in agricultural use. The Columbia Plateau Ecoregion is an arid, sagebrush steppe and grassland flanked by moister, predominantly forested, mountainous ecoregions. The Columbia Plateau is underlain by basalt up to two miles thick and partially covered by thick loess deposits. Where precipitation amounts are sufficient, the plateau's deep loess soils have been extensively cultivated for wheat. The Columbia River bisects this ecoregion, with its water subject to resource allocation involving fisheries, navigation, power production, recreation, and irrigation (Thorson et al. 2003).

Oregon has roughly 550 documented bird species with 285 documented in Sherman County (eBird 2026). Additionally, the Project Area is located within the Pacific Flyway, one of four main bird migration routes in North America (USFWS 2025).

2.0 METHODS

Tetra Tech has developed protocols based on industry standards for evaluating the potential for avian impacts at wind energy projects. Data collected following these protocols are used to identify species or species groups that may be at risk from Project development; it may also provide information for micro-siting components of wind energy projects to minimize impacts to birds. This report presents results in terms of species groups and highlights federally and state listed species (USFWS 2024b, ODFW 2024).

The studies conducted by Tetra Tech at the Project and reported herein include avian use surveys and eagle use surveys. Data were also collected on incidental observations that were recorded during eagle and avian use surveys at the Project. Data were recorded using electronic data collection on field tablets.

¹ References to BGTF generally include or also refer to the parent company and predecessor in interest to the Project, Brookfield Renewable N.A., except where specifically noted.

The USFWS ECPG recommends distributing point-count (PC) locations so that 800-meter radius survey plots cover at least 30 percent of the minimum convex polygon around turbine locations. Because the turbine layout was not finalized, Tetra Tech established 17 PC locations throughout the Project Area to ensure adequate coverage. The 17 PC locations provided spatial coverage of approximately 31 percent of the Project Area, which exceeds recommendations in the USFWS ECPG (USFWS 2013). The eagle use and avian use surveys were conducted consecutively once a month at each of the PC locations (Figure 2). The PC locations were placed on publicly accessible roads at locations that maximized a 360-degree sight distance for the observers and covered a diversity of habitats (Figure 2). PC locations were selected for their representative habitat and location within the Project Area.

Seasons were defined as spring (April and May 2025, and March 2026), summer (June, July, and August 2025), fall (September, October, and November 2025), and winter (December 2025, and January and February 2026). Eagle and avian use surveys were completed once monthly, resulting in three survey periods per season, for a total of 12 survey periods over the reporting period (Table 1).

2.1 Eagle Use Surveys

Eagle use surveys were conducted to determine spatial and temporal patterns of bald eagle (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*) use within the Project Area. Surveys were conducted during daylight hours, and the order in which points were surveyed was altered between subsequent rounds so that each point was surveyed at different times of the day over the reporting period. Each eagle use survey was conducted for 60 minutes at each PC location, during each survey period, for a total of 204 survey hours.

An experienced avian surveyor conducted eagle use surveys from April 11, 2025, to March 5, 2026 (Table 1). During each eagle use survey, the surveyor stood at the PC location and continuously scanned the surrounding landscape for eagle activity. If an eagle was observed, the surveyor recorded the species, age class (adult, immature, or unknown), time first and last observed, minimum and maximum flight heights, and flight behavior. Eagle flights were divided into two height categories: at or below 200 meters and over 200 meters above the ground. The surveyor recorded the total time that an eagle spent flying within the 800-meter radius circular plot (PC location), rounded up in 1-minute intervals so that the data could be translated into eagle-minutes. In accordance with the ECPG, eagle-minutes were defined as the number of minutes that eagles were observed flying at or below 200 meters within the 800-meter radius circular plot (USFWS 2013). Flight paths were drawn electronically using topographic maps and aerial imagery of the Project Area.

2.2 Avian Use Surveys

Avian use surveys were conducted to evaluate avian use, behavior, and species composition within the Project Area. The avian use surveys were conducted at the same PC locations used for the eagle use surveys (Figure 2). Each avian use survey was conducted for 20 minutes at each PC location, during each survey period, for a total of 68 survey hours. The surveyor recorded visual and aural detections of birds within an 800-meter radius survey plot encircling the PC location. For each detection, the surveyor recorded the species, number of individuals, time of detection, height above ground, and behavior. The surveyor estimated flight heights and distances using existing reference

points such as meteorological towers and local transmission lines, as well as landscape contours shown on topographic maps.

The survey protocol used in this study was designed to collect data on diurnal bird species and to provide results that are comparable with studies at other wind farms, rather than to target specific taxa. The benefit of using this protocol is that it estimates avian use throughout the day and captures activity by a variety of bird species. Songbirds are generally most active in the morning and can be difficult to detect during the afternoon. In contrast, diurnal raptors are more readily detected several hours after sunrise, as the sunlight heats the air and creates thermals, which facilitate soaring behavior (Ballam 1984). Each PC point was surveyed at different times of the day over the study period. Therefore, this protocol is appropriate for characterizing the avian community using the Project Area. However, it can only detect nocturnal migrants that are local breeders or that utilize the Project Area during the day as migratory stopover habitat.

Tetra Tech selected 20-minute survey periods because they provide adequate time to detect both raptors and non-raptors (Strickland et al. 2011; USFWS 2012). However, a survey time duration of 20 minutes may lead to double counting (i.e., counting the same individual more than once), as individuals may appear and disappear from the surveyor's view or may not be tracked by the surveyor while scanning for other birds. Double counting of birds generally is not problematic for this survey type because the objective is to document use in terms of number of birds noted per 20-minute survey, not the number of distinct individuals.

Detectability varies among species and habitats, and it is possible that not all individuals within the 800-meter radius were counted. This variation in detectability could result in an overestimation of mean use for conspicuous species and an underestimation of mean use for reclusive species (Thompson 2002). Birds that are not easily identifiable, such as those seen under low-light conditions or small birds observed at a distance, were identified to the lowest taxonomic level possible and included as unidentified birds in the results.

2.3 Incidental Observations

Incidental observations were defined as observations that occurred (1) during transit between PC locations; (2) before or after the official survey periods; and (3) outside of the 800-meter radius circular plot (during avian use surveys only; eagles observed outside of the 800-meter radius circular plot during eagle use surveys are included in the survey data). The surveyor recorded these observations separately from the eagle and avian use data. A summary of incidentally observed species provides additional information about species found in the Project Area (Section 3.3).

2.4 Data Quality Assurance/Quality Control

Tetra Tech implemented quality assurance and quality control measures during all stages of data collection, analysis, and report preparation. To ensure accuracy and completeness of electronic data sheets, each surveyor reviewed data before syncing the tablet with the cloud-based database. Prior to analysis, an independent, internal reviewer conducted a 100 percent quality assessment of the data entries. Any questions that arose at this time were directed toward and answered by the surveyor.

Tetra Tech reports undergo an internal double-review process, including at least one senior-level reviewer, to maximize the integrity and quality of the reports.

2.5 Analysis

This report and subsequent analysis cover the eagle and avian use surveys that were performed once a month from April 11, 2025, through March 5, 2026. No surveys were missed during the reporting period.

2.5.1 Eagle Use

Consistent with recommendations in the ECPG to assess eagle collision risk, pertinent eagle use information includes the amount of time eagles are observed flying at heights that may expose them to risk of collision. Therefore, Tetra Tech tabulated the number of eagles observed and total number of eagle-minutes in flight by survey period as described in Section 2.1. The overall eagle mean use was calculated as the total number of eagles observed divided by the total number of observation hours.

2.5.2 Avian Use

Tetra Tech tabulated summaries of species detected during avian use surveys and derived two metrics (mean use and frequency of occurrence) that describe avian use of the Project Area. Mean use was calculated as the average number of birds observed per 20-minute survey at each PC location. Tetra Tech also calculated a measure of variability (90 percent confidence intervals) for mean use values. The frequency of occurrence was measured as the percentage of surveys in which a species was detected. The number of observations, defined as an individual bird or a discrete flock of birds, is also presented. This information, along with the frequency of occurrence, help evaluate the extent to which Project mean use values are representative of sustained use of the area by a species or result from rare events (e.g., a single large flock of birds) or pulsed activity throughout a season.

Because individual birds are not uniquely marked or otherwise distinguishable, individuals may be counted multiple times during one or more survey periods, so actual population sizes or abundance cannot be determined. Mean use of a species therefore only provides an index that is assumed to be proportional to abundance and activity within the Project Area and that is comparable across species with similar detectability.

2.5.3 Species Groupings

Tetra Tech considered two primary groups of interest for avian use analysis: raptors and non-raptors. Raptors included eagles, hawks, owls, kestrels, osprey, and falcons. Other species groups were defined as non-raptors and subdivided into songbirds, pigeons/doves, waterfowl, waterbirds, cranes/rails, swifts/hummingbirds, gamebirds, and woodpeckers.

2.5.4 Flight Behavior

Tetra Tech evaluated flight behavior by calculating the proportion of flying birds observed below, within, or above the height of the turbine rotor swept area (RSA). Tetra Tech considered a bird to have flown within the height range of the RSA if any of its recorded heights fell between the upper or lower limits of the RSA.

At the time of this report, the final model of turbine to be used throughout the Project was not yet decided. Therefore, the turbine measurements of the most conservative turbine model under consideration (Vestas 4.5 megawatts [MW]) were used: with a rotor diameter of 163 meters and a hub height of 98 meters, the estimated RSA is between approximately 16.5 and 179.5 meters above ground.

2.5.5 Encounter Rate

To estimate the rate at which a given species flew at the height of the RSA, Tetra Tech applied the following equation to every species observed in the Project Area:

$$\text{Encounter Rate} = A \times P_f \times P_t$$

A is the mean number of birds/20 minutes for a given species; P_f is the proportion of all activity observations for a given species that was flying; and P_t is the proportion of flying observations that were within the height range of the turbine RSA for a given species. The encounter rate provides information on the rate at which a species may move at a height consistent with the RSA. This information is an important component in evaluating collision risk; however, this number alone does not indicate potential Project-related impact to a species. Species with a high encounter rate are considered potentially at a higher risk of collision than species with a low encounter rate, but other factors such as turbine location or a species' ability to detect and avoid turbine blades, flight maneuverability, and habitat selection also influence collision risk (Orloff and Flannery 1992; Drewitt and Langston 2008; Martin 2011; Garvin et al. 2011; May et al. 2015).

3.0 RESULTS

3.1 Eagle Use Surveys

Twenty-two bald eagles and seven golden eagles were observed within the Project Area during eagle use surveys. Observations resulted in six eagle-minutes for bald eagles and nine eagle-minutes for golden eagles (Table 2); eagle mean use was 0.03 bald eagles/hour and 0.04 golden eagles/hour.

3.2 Avian Use Surveys

3.2.1 Mean Use and Frequency of Occurrence

A total of 8,753 birds from 88 species and two taxa (raptors and non-raptors) were observed during avian use surveys (Table 3). Eight species groups were observed within the non-raptor taxa: songbirds, waterfowl, pigeons/doves, cranes/rails, waterbirds, swifts/hummingbirds, woodpeckers, and gamebirds. The overall mean use for all species and seasons was 43.77 birds/20 minutes (Table 3). Mean use was the highest in fall (74.12 birds/20 minutes), followed by winter (56.60 birds/20 minutes), spring 2026 (23.75 birds/20 minutes), summer (22.27 birds/20 minutes) and spring 2025 (21.76 birds/20 minutes; Table 3).

3.2.1.1 Non-raptor Use

Overall mean use for non-raptors was 42.52 birds/20 minutes (Table 3). Songbirds had the highest overall mean use among non-raptors (33.27 birds/20 minutes), and the highest mean use during all

seasons (Table 3). Songbirds comprised 76 percent of all bird observations and were the most frequently detected species group (68.7 percent of surveys detected; Table 4). The red-winged blackbird (*Agelaius phoeniceus*) had the highest mean use of any songbird at 8.78 birds/20 minutes and comprised 20.1 percent of all birds observed, due to a high number of observations in the fall season. The horned lark (*Eremophila alpestris*) had a mean use of 8.69 birds/20 minutes and comprised 19.9 percent of all birds observed during avian use surveys; Table 3, Table 4). Collectively, these two species accounted for 40 percent of all birds observed at the site (Table 4).

Waterfowl, Pigeons/doves, cranes/rails, waterbirds, swifts/hummingbirds, woodpeckers, and gamebirds each had mean use values ranging from 7.5 birds/20 minutes to 0.03 birds/20 minutes and comprised 17.1 percent or less of all bird observations (Table 3, Table 4). The Canada goose (*Branta canadensis*) had the highest mean use among these species' groups with 5.54 birds/20 minutes and comprised 12.6 percent of all birds observed.

Seasonal mean use by non-raptors peaked during fall (73.22 birds/20 minutes; Table 3). Non-raptor mean use was highest on survey period 8 (November 10-14, 2025; 147 birds/20 minutes; Figure 4). These results were primarily driven by songbirds as there were 3,498 individuals across 193 observations in the fall (Table 3). Among the point-count locations, PC 13 had the highest mean use by non-raptors at 243.33 birds/20 minutes (Figure 5). The remaining PCs had a non-raptor mean use less than or equal to 56.5 birds/20 minutes (Figure 5). One factor driving the high mean use at PC 13 were two large flocks, each estimated at roughly 1,000 individuals, observed during the fall season.

3.2.1.2 Raptor Use

Overall mean use for raptors was 1.25 birds/20 minutes (Table 3). Raptors comprised 2.8 percent of all bird observations and were detected in 17.1 percent of all surveys (Table 4). Of the raptors observed, the red-tailed hawk (*Buteo jamaicensis*) had the highest mean use (0.31; Table 3) and comprised 0.7 percent of all birds observed during avian use surveys (Table 4). All other raptor species had a mean use value equal to or less than 0.24 birds/20 minutes, comprising 0.5 percent or less of all bird observations (Table 3, Table 4).

Seasonal mean use by raptors peaked during summer (1.71 birds/20 minutes), primarily driven by turkey vultures (*Cathartes aura*; 31 individuals across 11 observations; Table 3). Mean raptor use was highest during survey period 5 (August 1 - 8, 2025; 2.35 birds/20 minutes; Figure 6) and at PC 12 (2.08 birds/20 minutes; Figure 7). All other PC locations had a raptor mean use less than or equal to 1.92 birds/20 minutes (Figure 7).

3.2.2 Encounter Rate and Flight Height

During the avian use surveys, Tetra Tech calculated that 84.5 percent of the birds observed were flying (Tables 3 and 5). Overall, 20.8 percent of non-raptors and 36.5 percent of raptors observed flew at the height of the anticipated RSA (Table 5). Most non-raptors in flight were observed below RSA height (63.7 percent), which was attributable in large part to songbirds during the fall season. Winter had the greatest number of non-raptor individuals observed flying at the height of the anticipated RSA (1,208 birds). The greatest number of raptors observed flying at the height of the anticipated RSA (45 individuals) were observed during summer (Table 5).

Canada goose had the highest encounter rate for all bird species (4.75 birds flying at RSA height/20 minutes; Table 6). All other species had an encounter rate of less than 1.35 birds flying at RSA height/20 minutes (Table 6). The turkey vulture had the highest encounter rate for raptors (0.12 birds flying at RSA height/20 minutes). All other raptor species had an encounter rate equal to or less than 0.09 birds flying at RSA height/20 minutes (Table 6).

3.3 Incidental Observations

Seven bald eagles and four golden eagles were observed incidentally during the reporting period (Figure 3; Table 7). Additionally, 159 non-eagle species were observed incidentally to surveys (number of individuals observed): northern harrier (92; *Circus hudsonius*), Swainson's hawk (54; *Buteo swainsoni*), American white pelican (7; *Pelecanus erythrorhynchos*), sage thrasher (2; *Oreoscoptes montanus*), short-eared owl (2; *Asio flammeus*), and peregrine falcon (2; *Falco peregrinus*; Table 7).

3.4 Listed Species

No federally or state listed threatened, endangered, or candidate species were observed during avian use surveys, eagle use surveys, or as incidental observations (USFWS 2024b, ODFW 2024).

4.0 DISCUSSION

4.1 Eagles

Bald eagles breed in 32 of 36 Oregon counties and are found throughout the state during non-breeding season (ODFW 2026a). Bald eagles are opportunistic foragers that prey primarily on fish but also feed on other aquatic and terrestrial vertebrates, as well as on carrion (Buehler 2022). Breeding areas are closely associated with aquatic habitats with forested shorelines or cliffs. Wintering locations are associated with aquatic areas that contain open water for foraging on fish and waterfowl, with wintering bald eagles roosting anywhere between 6 and 20 miles from foraging sites depending on abundance of prey. The Project Area does not contain aquatic features typically associated with bald eagles, nor were any active or historic bald eagle nests noted during the desktop review or during raptor nest surveys conducted in March and May 2025 (ORBIC 2025, Tetra Tech 2025). Based on the number of observations during the 2025 – 2026 eagle and avian use surveys, the likelihood that bald eagles will occur within the Project Area is high.

The golden eagle is the largest soaring raptor inhabiting open country and mountainous terrain in eastern Oregon and is a year-round resident of Oregon in all counties east of the Cascade Range (ODFW 2026b). The golden eagle inhabits shrub-steppe, grassland, juniper, and open ponderosa pine and mixed conifer/deciduous habitats. It forages in a variety of habitat types, preferring areas with an open shrub component that provides food and cover for prey. The Project Area contains habitat features for golden eagles, i.e., open country near cliffs and prey animals. One active and one alternate golden eagle nest (within the same territory), as well as three incidental sightings, were recorded near the Project Area during raptor nest surveys conducted in March and May 2025 (Tetra Tech 2025). Based on the number of observations during the 2025 – 2026 eagle and avian use surveys

and the presence of an occupied territory, the likelihood golden eagles will occur within the Project Area is high.

4.2 Avian

The avian community detected within the Project Area during avian surveys was largely characterized by resident and migrant songbird species typically associated with eastern Oregon. The Project Area is located within the Northern Rockies region (as defined by the American Wind Wildlife Institute; AWWI 2025). The publicly available median annual avian fatality rate from wind facilities in the Northern Rockies is estimated at 1.86 birds/megawatt/year (AWWI 2025). Should avian fatalities occur in the Project Area, they are likely to fall around the median fatality rate for this region.

4.2.1 Non-Raptor Use

The red-winged blackbird had the highest overall mean use (8.78), and the Canada goose had the highest non-raptor encounter rate (4.75). The horned lark (8.69) had a similar mean use to the red-winged blackbird and had the second highest non-raptor encounter rate (1.35). Of the flying individuals seen during avian use surveys, 93.4 percent of Canada geese were at RSA height. However, documented Canada goose fatalities at wind energy facilities are low with only 14 reported incidents, as compared to the horned lark which has 1,309 reported incidents (AWWI 2025) and comprised 19.9 percent of all birds seen during the 2025 – 2026 avian use surveys. Likewise, the red-winged blackbird had a low number of reported incidents (153) in comparison to the horned lark across reported wind energy facilities (AWWI 2025). The high number of fatalities for the horned lark may be due to the male's territorial flight display that brings it into the height of the anticipated RSA, therefore increasing the likelihood of collision (Johnson and Erickson 2011).

4.2.2 Raptor Use

Collision risk to raptors varies with species-specific traits such as flight behavior, as well as site-specific variables such as turbine height and topography (Strickland et al. 2011). The unique foraging behavior of raptors is thought to contribute to their relatively greater susceptibility to turbine collisions (Kikuchi 2008; de Lucas et al. 2008). During the avian use surveys conducted for the Project Area, 36.5 percent of raptor flights were within the RSA.

Although turkey vultures (0.12) and red-tailed hawks (0.09) had the highest mean use and encounter rates when compared to other raptors, mean use and encounter rates were low compared to non-raptor species. Red-tailed hawks are common throughout the continental United States and are associated with a variety of habitats, including the agricultural and grassland habitat present within the Project Area. Red-tailed hawks are one of the raptor species most commonly found as turbine-related fatalities (AWWI 2025); however, in a study of raptor response to wind farms, red-tailed hawks displayed turbine avoidance flight behaviors (Garvin et al. 2011).

4.3 Listed Species

No federally or state listed threatened, endangered, or candidate species were observed during avian use surveys, eagle use surveys, or as incidental observations (USFWS 2024b, ODFW 2024).

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TABLES

Table 1. Speedway Energy Facility Avian and Eagle Use Survey Dates, 2025 – 2026

Season	Survey Period	Dates
Spring 2025	1	04/11 - 04/13
	2	05/06 - 05/09
Summer 2025	3	06/03 - 06/06
	4	07/01 - 07/03
	5	08/01 - 08/08
Fall 2025	6	09/02 - 09/05
	7	10/13 - 10/16
	8	11/10 - 11/14
Winter 2025 - 2026	9	12/08 - 12/11
	10	01/04 - 01/08
	11	02/02 - 02/05
Spring 2026	12	03/02 - 03/05

Table 2. Eagle Activity Observed During Eagle Use Surveys at the Speedway Energy Facility, 2025 – 2026

Survey Period	Dates	Survey Hours	Number of Eagles		Eagle-Minutes: Minutes in Flight Within Survey Plot ¹	
			Bald Eagle	Golden Eagle	Bald Eagle	Golden Eagle
Spring 2025		34	1	1	0	0
1	04/11 - 04/13	17	0	1	0	0
2	05/06 - 05/09	17	1	0	0	0
Summer 2025		51	0	2	0	9
3	06/03 - 06/06	17	0	1	0	9
4	07/01 - 07/03	17	0	0	0	0
5	08/01 - 08/08	17	0	1	0	0
Fall 2025		51	8	2	0	0
6	09/02 - 09/05	17	0	0	0	0
7	10/13 - 10/16	17	8	1	0	0
8	11/10 - 11/14	17	0	1	0	0
Winter 2025 - 2026		51	9	1	5	0
9	12/08 - 12/11	17	0	0	0	0
10	01/04 - 01/08	17	7	0	5	0
11	02/02 - 02/05	17	2	1	0	0
Spring 2026		17	4	1	1	0
12	03/02 - 03/05	17	4	1	1	0
Total		204	22	7	6	9

¹The plot is defined as the area at or below 200 m height and within 800 m radius of the survey point.

Table 3. Mean Avian Use¹, by Species Group, Observed during Avian Use Surveys at the Speedway Energy Facility, 2025 – 2026

		Spring 2025			Summer 2025			Fall 2025			Winter 2025-2026			Spring 2026			Total		
		# Birds	# Obs.	Mean Use	# Birds	# Obs.	Mean Use	# Birds	# Obs.	Mean Use	# Birds	# Obs.	Mean Use	# Birds	# Obs.	Mean Use	# Birds	# Obs.	Mean Use
Non-Raptor		696	219	20.47	1049	262	20.57	3734	227	73.22	2667	190	55.56	358	82	22.38	8504	980	42.52
	Songbirds	550	195	16.18	955	230	18.73	3498	193	68.59	1361	135	28.35	289	60	18.06	6653	813	33.27
	Red-winged Blackbird	55	14	1.62	87	16	1.71	1037	8	20.33	507	9	10.56	70	5	4.38	1756	52	8.78
	Horned Lark	111	44	3.26	296	44	5.80	993	51	19.47	268	41	5.58	70	17	4.38	1738	197	8.69
	European Starling	59	11	1.74	97	8	1.90	1075	11	21.08	286	11	5.96	49	3	3.06	1566	44	7.83
	Western Meadowlark	112	44	3.29	85	34	1.67	70	35	1.37	47	24	0.98	53	16	3.31	367	153	1.84
	Cliff Swallow	32	5	0.94	142	20	2.78	0	0	0	0	0	0	0	0	0	174	25	0.87
	Common Raven	26	21	0.76	34	20	0.67	48	31	0.94	38	29	0.79	21	9	1.31	167	110	0.84
	Brewer's Blackbird	39	4	1.15	8	4	0.16	42	3	0.82	69	2	1.44	6	1	0.38	164	14	0.82
	Barn Swallow	0	0	0	47	17	0.92	115	11	2.25	0	0	0	0	0	0	162	28	0.81
	Unidentified Blackbird	0	0	0	0	0	0	6	2	0.12	105	1	2.19	0	0	0	111	3	0.56
	Yellow-headed Blackbird	22	7	0.65	65	14	1.27	10	2	0.20	0	0	0	0	0	0	97	23	0.49
	House Sparrow	0	0	0	5	1	0.10	26	2	0.51	24	3	0.50	0	0	0	55	6	0.28
	Vesper Sparrow	23	10	0.68	25	13	0.49	5	3	0.10	0	0	0	0	0	0	53	26	0.27
	Tree Swallow	38	10	1.12	12	4	0.24	0	0	0	0	0	0	0	0	0	50	14	0.25
	American Robin	3	2	0.09	4	4	0.08	9	3	0.18	3	3	0.06	7	1	0.44	26	13	0.13
	Dark-eyed Junco	0	0	0	0	0	0	11	2	0.22	6	4	0.13	4	2	0.25	21	8	0.11
	Savannah Sparrow	5	3	0.15	10	7	0.20	3	3	0.06	0	0	0	0	0	0	18	13	0.09
	Yellow-rumped Warbler	3	3	0.09	0	0	0	12	5	0.24	0	0	0	0	0	0	15	8	0.08
	Song Sparrow	0	0	0	4	3	0.08	3	1	0.06	1	1	0.02	5	2	0.31	13	7	0.07
	House Finch	0	0	0	1	1	0.02	11	6	0.22	1	1	0.02	0	0	0	13	8	0.07
	American Pipit	0	0	0	0	0	0	12	6	0.24	0	0	0	0	0	0	12	6	0.06
	Cedar Waxwing	0	0	0	10	1	0.20	0	0	0	0	0	0	0	0	0	10	1	0.05
	Say's Phoebe	6	6	0.18	2	2	0.04	1	1	0.02	0	0	0	0	0	0	9	9	0.05
	Western Kingbird	0	0	0	7	4	0.14	0	0	0	0	0	0	0	0	0	7	4	0.04
	Lazuli Bunting	1	1	0.03	5	4	0.10	0	0	0	0	0	0	0	0	0	6	5	0.03
	Black-billed Magpie	2	2	0.06	0	0	0	2	1	0.04	1	1	0.02	0	0	0	5	4	0.03
	American Goldfinch	2	1	0.06	1	1	0.02	1	1	0.02	0	0	0	1	1	0.06	5	4	0.03
	Loggerhead Shrike	2	1	0.06	1	1	0.02	1	1	0.02	0	0	0	0	0	0	4	3	0.02
	Ruby-crowned Kinglet	0	0	0	0	0	0	1	1	0.02	2	2	0.04	1	1	0.06	4	4	0.02
	White-crowned Sparrow	3	1	0.09	0	0	0	0	0	0	1	1	0.02	0	0	0	4	2	0.02
	Northern Shrike	0	0	0	0	0	0	0	0	0	2	2	0.04	0	0	0	2	2	0.01
	Northern Rough-winged Swallow	2	1	0.06	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0.01
	Mountain Bluebird	0	0	0	0	0	0	2	1	0.04	0	0	0	0	0	0	2	1	0.01
	American Crow	1	1	0.03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	<0.01
	Unidentified Flycatcher	1	1	0.03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	<0.01
	Bank Swallow	1	1	0.03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	<0.01
	Yellow Warbler	1	1	0.03	0	0	0	0	0	0	0	0	0	0	0	0	1	1	<0.01

		Spring 2025			Summer 2025			Fall 2025			Winter 2025-2026			Spring 2026			Total		
		# Birds	# Obs.	Mean Use	# Birds	# Obs.	Mean Use	# Birds	# Obs.	Mean Use	# Birds	# Obs.	Mean Use	# Birds	# Obs.	Mean Use	# Birds	# Obs.	Mean Use
	House Wren	0	0	0	1	1	0.02	0	0	0	0	0	0	0	0	0	1	1	<0.01
	Sage Thrasher	0	0	0	1	1	0.02	0	0	0	0	0	0	0	0	0	1	1	<0.01
	Brown-headed Cowbird	0	0	0	1	1	0.02	0	0	0	0	0	0	0	0	0	1	1	<0.01
	Grasshopper Sparrow	0	0	0	1	1	0.02	0	0	0	0	0	0	0	0	0	1	1	<0.01
	Brewer's Sparrow	0	0	0	1	1	0.02	0	0	0	0	0	0	0	0	0	1	1	<0.01
	Lark Sparrow	0	0	0	1	1	0.02	0	0	0	0	0	0	0	0	0	1	1	<0.01
	Warbling Vireo	0	0	0	1	1	0.02	0	0	0	0	0	0	0	0	0	1	1	<0.01
	Rock Wren	0	0	0	0	0	0	1	1	0.02	0	0	0	0	0	0	1	1	<0.01
	Marsh Wren	0	0	0	0	0	0	1	1	0.02	0	0	0	0	0	0	1	1	<0.01
	Bewick's Wren	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.06	1	1	<0.01
	Spotted Towhee	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.06	1	1	<0.01
	Waterfowl	10	5	0.29	23	5	0.45	135	13	2.65	1285	43	26.77	48	10	3.00	1501	76	7.51
	Canada Goose	1	1	0.03	0	0	0	66	4	1.29	1035	15	21.56	5	2	0.31	1107	22	5.54
	Mallard	1	1	0.03	5	1	0.10	5	1	0.10	133	9	2.77	18	2	1.13	162	14	0.81
	Ring-necked Duck	0	0	0	0	0	0	25	2	0.49	72	7	1.50	15	1	0.94	112	10	0.56
	Gadwall	0	0	0	12	2	0.24	19	2	0.37	0	0	0	0	0	0	31	4	0.16
	Common Goldeneye	0	0	0	0	0	0	0	0	0	19	6	0.40	8	3	0.50	27	9	0.14
	Cackling Goose	0	0	0	0	0	0	11	2	0.22	15	1	0.31	0	0	0	26	3	0.13
	Unidentified Duck	0	0	0	5	1	0.10	7	1	0.14	0	0	0	0	0	0	12	2	0.06
	Ruddy Duck	6	2	0.18	1	1	0.02	0	0	0	0	0	0	0	0	0	7	3	0.04
	Green-winged Teal	0	0	0	0	0	0	0	0	0	7	3	0.15	0	0	0	7	3	0.04
	American Wigeon	0	0	0	0	0	0	0	0	0	3	1	0.06	0	0	0	3	1	0.02
	Lesser Scaup	2	1	0.06	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0.01
	Blue-winged Teal	0	0	0	0	0	0	2	1	0.04	0	0	0	0	0	0	2	1	0.01
	Common Merganser	0	0	0	0	0	0	0	0	0	1	1	0.02	0	0	0	1	1	<0.01
	Bufflehead	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.06	1	1	<0.01
	Northern Pintail	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.06	1	1	<0.01
	Pigeons/Doves	117	8	3.44	37	10	0.73	84	12	1.65	15	6	0.31	10	6	0.63	263	42	1.32
	Rock Pigeon	114	5	3.35	30	3	0.59	17	4	0.33	7	1	0.15	2	1	0.13	170	14	0.85
	Eurasian Collared-Dove	0	0	0	0	0	0	64	6	1.25	8	5	0.17	7	4	0.44	79	15	0.40
	Mourning Dove	3	3	0.09	7	7	0.14	3	2	0.06	0	0	0	1	1	0.06	14	13	0.07
	Cranes/Rails	11	4	0.32	12	6	0.24	1	1	0.02	0	0	0	7	3	0.44	31	14	0.16
	American Coot	11	4	0.32	12	6	0.24	1	1	0.02	0	0	0	5	2	0.31	29	13	0.15
	Virginia Rail	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0.13	2	1	0.01
	Waterbirds	8	7	0.24	15	9	0.29	1	1	0.02	2	2	0.04	4	3	0.25	30	22	0.15
	Red-necked Phalarope	8	7	0.24	9	4	0.18	1	1	0.02	2	2	0.04	3	2	0.19	23	16	0.12
	Killdeer	0	0	0	5	4	0.10	0	0	0	0	0	0	1	1	0.06	6	5	0.03
	Great Blue Heron	0	0	0	1	1	0.02	0	0	0	0	0	0	0	0	0	1	1	<0.01
	Swifts/Hummingbirds	0	0	0	6	1	0.12	9	2	0.18	0	0	0	0	0	0	15	3	0.08
	Vaux's Swift	0	0	0	6	1	0.12	9	2	0.18	0	0	0	0	0	0	15	3	0.08

		Spring 2025			Summer 2025			Fall 2025			Winter 2025-2026			Spring 2026			Total		
		# Birds	# Obs.	Mean Use	# Birds	# Obs.	Mean Use	# Birds	# Obs.	Mean Use	# Birds	# Obs.	Mean Use	# Birds	# Obs.	Mean Use	# Birds	# Obs.	Mean Use
	Woodpeckers	0	0	0	0	0	0	2	2	0.04	4	4	0.08	0	0	0	6	6	0.03
	Northern Flicker	0	0	0	0	0	0	2	2	0.04	4	4	0.08	0	0	0	6	6	0.03
	Gamebirds	0	0	0	1	1	0.02	4	3	0.08	0	0	0	0	0	0	5	4	0.03
	California Quail	0	0	0	0	0	0	4	3	0.08	0	0	0	0	0	0	4	3	0.02
	Chukar	0	0	0	1	1	0.02	0	0	0	0	0	0	0	0	0	1	1	<0.01
Raptors		44	41	1.29	87	56	1.71	46	42	0.90	50	45	1.04	22	16	1.38	249	200	1.25
	Raptors	44	41	1.29	87	56	1.71	46	42	0.90	50	45	1.04	22	16	1.38	249	200	1.25
	Red-tailed Hawk	12	11	0.35	20	15	0.39	14	11	0.27	9	7	0.19	7	5	0.44	62	49	0.31
	Northern Harrier	16	16	0.47	13	8	0.25	5	5	0.10	12	12	0.25	2	2	0.13	48	43	0.24
	American Kestrel	4	3	0.12	5	5	0.10	15	14	0.29	16	14	0.33	6	5	0.38	46	41	0.23
	Turkey Vulture	1	1	0.03	31	11	0.61	2	2	0.04	0	0	0	0	0	0	34	14	0.17
	Rough-legged Hawk	1	1	0.03	0	0	0	5	5	0.10	9	8	0.19	6	3	0.38	21	17	0.11
	Swainson's Hawk	8	7	0.24	13	12	0.25	0	0	0	0	0	0	0	0	0	21	19	0.11
	Prairie Falcon	1	1	0.03	0	0	0	1	1	0.02	2	2	0.04	0	0	0	4	4	0.02
	Osprey	0	0	0	2	2	0.04	1	1	0.02	0	0	0	0	0	0	3	3	0.02
	Bald Eagle	0	0	0	0	0	0	2	2	0.04	1	1	0.02	0	0	0	3	3	0.02
	Cooper's Hawk	1	1	0.03	1	1	0.02	0	0	0	0	0	0	0	0	0	2	2	0.01
	Short-eared Owl	0	0	0	2	2	0.04	0	0	0	0	0	0	0	0	0	2	2	0.01
	Sharp-shinned Hawk	0	0	0	0	0	0	1	1	0.02	0	0	0	0	0	0	1	1	<0.01
	Merlin	0	0	0	0	0	0	0	0	0	1	1	0.02	0	0	0	1	1	<0.01
	Peregrine Falcon	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.06	1	1	<0.01
Total		740	260	21.76	1,136	318	22.27	3,780	269	74.12	2,717	235	56.60	380	98	23.75	8,753	1,180	43.77

¹ Mean use = # birds/20-min. survey.

Table 4. Avian Percent Composition and Frequency, by Species Group, Observed during Avian Use Surveys at the Speedway Energy Facility, 2025 – 2026

		Spring 2025		Summer 2025		Fall 2025		Winter 2025-2026		Spring 2026		Total	
		% Comp. ¹	Freq. ²	% Comp. ¹	Freq. ²	% Comp. ¹	Freq. ²	% Comp. ¹	Freq. ²	% Comp. ¹	Freq. ²	% Comp. ¹	Freq. ²
Non-Raptor		94.1	83.6	92.3	82.2	98.8	84.4	98.2	81.3	94.2	83.5	97.2	82.9
	Songbirds	74.3	74.0	84.1	72.1	92.5	71.7	50.1	57.6	76.1	60.8	76.0	68.7
	Red-winged Blackbird	7.4	5.2	7.7	5.1	27.4	3.0	18.7	4.0	18.4	5.2	20.1	4.4
	Horned Lark	15.0	16.8	26.1	13.3	26.3	19.0	9.9	17.0	18.4	16.5	19.9	16.4
	European Starling	8.0	4.4	8.5	2.5	28.4	4.1	10.5	4.5	12.9	3.1	17.9	3.7
	Western Meadowlark	15.1	14.8	7.5	10.8	1.9	13.0	1.7	9.8	13.9	16.5	4.2	12.5
	Cliff Swallow	4.3	2.0	12.5	6.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.1
	Common Raven	3.5	8.4	3.0	6.3	1.3	11.5	1.4	12.9	5.5	9.3	1.9	9.5
	Brewer's Blackbird	5.3	1.6	0.7	1.3	1.1	1.1	2.5	0.9	1.6	1.0	1.9	1.2
	Barn Swallow	0.0	0.0	4.1	5.4	3.0	4.1	0.0	0.0	0.0	0.0	1.9	2.4
	Unidentified Blackbird	0.0	0.0	0.0	0.0	0.2	0.7	3.9	0.4	0.0	0.0	1.3	0.3
	Yellow-headed Blackbird	3.0	2.8	5.7	4.4	0.3	0.7	0.0	0.0	0.0	0.0	1.1	2.0
	House Sparrow	0.0	0.0	0.4	0.3	0.7	0.7	0.9	1.3	0.0	0.0	0.6	0.5
	Vesper Sparrow	3.1	4.0	2.2	4.1	0.1	1.1	0.0	0.0	0.0	0.0	0.6	2.3
	Tree Swallow	5.1	4.0	1.1	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.2
	American Robin	0.4	0.8	0.4	1.3	0.2	1.1	0.1	1.3	1.8	1.0	0.3	1.1
	Dark-eyed Junco	0.0	0.0	0.0	0.0	0.3	0.7	0.2	1.8	1.1	2.1	0.2	0.7
	Savannah Sparrow	0.7	1.2	0.9	2.2	<0.1	1.1	0.0	0.0	0.0	0.0	0.2	1.1
	Yellow-rumped Warbler	0.4	1.2	0.0	0.0	0.3	1.9	0.0	0.0	0.0	0.0	0.2	0.7
	Song Sparrow	0.0	0.0	0.4	1.0	<0.1	0.4	<0.1	0.4	1.3	2.1	0.1	0.6
	House Finch	0.0	0.0	<0.1	0.3	0.3	2.2	<0.1	0.4	0.0	0.0	0.1	0.7
	American Pipit	0.0	0.0	0.0	0.0	0.3	2.2	0.0	0.0	0.0	0.0	0.1	0.5
	Cedar Waxwing	0.0	0.0	0.9	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.1	<0.1
	Say's Phoebe	0.8	2.4	0.2	0.6	<0.1	0.4	0.0	0.0	0.0	0.0	0.1	0.8
	Western Kingbird	0.0	0.0	0.6	1.3	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	0.3
	Lazuli Bunting	0.1	0.4	0.4	1.3	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	0.4
	Black-billed Magpie	0.3	0.8	0.0	0.0	<0.1	0.4	<0.1	0.4	0.0	0.0	<0.1	0.3
	American Goldfinch	0.3	0.4	<0.1	0.3	<0.1	0.4	0.0	0.0	0.3	1.0	<0.1	0.3
	White-crowned Sparrow	0.4	0.4	0.0	0.0	0.0	0.0	<0.1	0.4	0.0	0.0	<0.1	0.2
	Loggerhead Shrike	0.3	0.4	<0.1	0.3	<0.1	0.4	0.0	0.0	0.0	0.0	<0.1	0.3
	Ruby-crowned Kinglet	0.0	0.0	0.0	0.0	<0.1	0.4	<0.1	0.9	0.3	1.0	<0.1	0.3
	Northern Rough-winged Swallow	0.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1
	Mountain Bluebird	0.0	0.0	0.0	0.0	<0.1	0.4	0.0	0.0	0.0	0.0	<0.1	<0.1
	Northern Shrike	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	0.9	0.0	0.0	<0.1	0.2
	American Crow	0.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1
	Unidentified Flycatcher	0.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1
	Bank Swallow	0.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1
	Yellow Warbler	0.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1

		Spring 2025		Summer 2025		Fall 2025		Winter 2025-2026		Spring 2026		Total	
		% Comp. ¹	Freq. ²	% Comp. ¹	Freq. ²	% Comp. ¹	Freq. ²	% Comp. ¹	Freq. ²	% Comp. ¹	Freq. ²	% Comp. ¹	Freq. ²
	House Wren	0.0	0.0	<0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1
	Sage Thrasher	0.0	0.0	<0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1
	Brown-headed Cowbird	0.0	0.0	<0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1
	Grasshopper Sparrow	0.0	0.0	<0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1
	Brewer's Sparrow	0.0	0.0	<0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1
	Lark Sparrow	0.0	0.0	<0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1
	Warbling Vireo	0.0	0.0	<0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1
	Rock Wren	0.0	0.0	0.0	0.0	<0.1	0.4	0.0	0.0	0.0	0.0	<0.1	<0.1
	Marsh Wren	0.0	0.0	0.0	0.0	<0.1	0.4	0.0	0.0	0.0	0.0	<0.1	<0.1
	Bewick's Wren	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.0	<0.1	<0.1
	Spotted Towhee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.0	<0.1	<0.1
	Waterfowl	1.4	2.0	2.0	1.6	3.6	4.8	47.3	18.3	12.6	10.3	17.1	6.4
	Canada Goose	0.1	0.4	0.0	0.0	1.7	1.5	38.1	5.8	1.3	2.1	12.6	1.7
	Mallard	0.1	0.4	0.4	0.3	0.1	0.4	4.9	4.0	4.7	2.1	1.9	1.2
	Ring-necked Duck	0.0	0.0	0.0	0.0	0.7	0.7	2.6	3.1	3.9	1.0	1.3	0.9
	Gadwall	0.0	0.0	1.1	0.6	0.5	0.7	0.0	0.0	0.0	0.0	0.4	0.3
	Common Goldeneye	0.0	0.0	0.0	0.0	0.0	0.0	0.7	2.7	2.1	3.1	0.3	0.8
	Cackling Goose	0.0	0.0	0.0	0.0	0.3	0.7	0.6	0.4	0.0	0.0	0.3	0.3
	Unidentified Duck	0.0	0.0	0.4	0.3	0.2	0.4	0.0	0.0	0.0	0.0	0.1	0.2
	Ruddy Duck	0.8	0.8	<0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	0.3
	Green-winged Teal	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.3	0.0	0.0	<0.1	0.3
	American Wigeon	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.0	0.0	<0.1	<0.1
	Lesser Scaup	0.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1
	Blue-winged Teal	0.0	0.0	0.0	0.0	<0.1	0.4	0.0	0.0	0.0	0.0	<0.1	<0.1
	Common Merganser	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	0.4	0.0	0.0	<0.1	<0.1
	Bufflehead	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.0	<0.1	<0.1
	Northern Pintail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.0	<0.1	<0.1
	Pigeons/Doves	15.8	3.2	3.3	3.2	2.2	4.5	0.6	2.7	2.6	6.2	3.0	3.6
	Rock Pigeon	15.4	2.0	2.6	1.0	0.4	1.5	0.3	0.4	0.5	1.0	1.9	1.2
	Eurasian Collared-Dove	0.0	0.0	0.0	0.0	1.7	2.2	0.3	2.2	1.8	4.1	0.9	1.3
	Mourning Dove	0.4	1.2	0.6	2.2	<0.1	0.7	0.0	0.0	0.3	1.0	0.2	1.1
	Cranes/Rails	1.5	1.6	1.1	1.9	<0.1	0.4	0.0	0.0	1.8	3.1	0.4	1.2
	American Coot	1.5	1.6	1.1	1.9	<0.1	0.4	0.0	0.0	1.3	2.1	0.3	1.1
	Virginia Rail	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.0	<0.1	<0.1
	Waterbirds	1.1	2.8	1.3	2.9	<0.1	0.4	<0.1	0.9	1.1	3.1	0.3	1.9
	Red-necked Phalarope	1.1	2.8	0.8	1.3	<0.1	0.4	<0.1	0.9	0.8	2.1	0.3	1.4
	Killdeer	0.0	0.0	0.4	1.3	0.0	0.0	0.0	0.0	0.3	1.0	<0.1	0.4
	Great Blue Heron	0.0	0.0	<0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1
	Swifts/Hummingbirds	0.0	0.0	0.5	0.3	0.2	0.7	0.0	0.0	0.0	0.0	0.2	0.3

		Spring 2025		Summer 2025		Fall 2025		Winter 2025-2026		Spring 2026		Total	
		% Comp. ¹	Freq. ²	% Comp. ¹	Freq. ²	% Comp. ¹	Freq. ²	% Comp. ¹	Freq. ²	% Comp. ¹	Freq. ²	% Comp. ¹	Freq. ²
	Vaux's Swift	0.0	0.0	0.5	0.3	0.2	0.7	0.0	0.0	0.0	0.0	0.2	0.3
	Woodpeckers	0.0	0.0	0.0	0.0	<0.1	0.7	0.1	1.8	0.0	0.0	<0.1	0.5
	Northern Flicker	0.0	0.0	0.0	0.0	<0.1	0.7	0.1	1.8	0.0	0.0	<0.1	0.5
	Gamebirds	0.0	0.0	<0.1	0.3	0.1	1.1	0.0	0.0	0.0	0.0	<0.1	0.3
	California Quail	0.0	0.0	0.0	0.0	0.1	1.1	0.0	0.0	0.0	0.0	<0.1	0.3
	Chukar	0.0	0.0	<0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1
Raptors		5.9	16.4	7.7	17.8	1.2	15.6	1.8	18.8	5.8	16.5	2.8	17.1
	Raptors	5.9	16.4	7.7	17.8	1.2	15.6	1.8	18.8	5.8	16.5	2.8	17.1
	Red-tailed Hawk	1.6	4.4	1.8	4.8	0.4	4.1	0.3	3.1	1.8	5.2	0.7	4.2
	Northern Harrier	2.2	6.4	1.1	2.5	0.1	1.9	0.4	4.9	0.5	2.1	0.5	3.6
	American Kestrel	0.5	1.2	0.4	1.6	0.4	5.2	0.6	6.3	1.6	5.2	0.5	3.5
	Turkey Vulture	0.1	0.4	2.7	3.5	<0.1	0.7	0.0	0.0	0.0	0.0	0.4	1.2
	Rough-legged Hawk	0.1	0.4	0.0	0.0	0.1	1.9	0.3	2.7	1.6	3.1	0.2	1.3
	Swainson's Hawk	1.1	2.8	1.1	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.6
	Prairie Falcon	0.1	0.4	0.0	0.0	<0.1	0.4	<0.1	0.9	0.0	0.0	<0.1	0.3
	Osprey	0.0	0.0	0.2	0.6	<0.1	0.4	0.0	0.0	0.0	0.0	<0.1	0.3
	Bald Eagle	0.0	0.0	0.0	0.0	<0.1	0.7	<0.1	0.4	0.0	0.0	<0.1	0.3
	Cooper's Hawk	0.1	0.4	<0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	0.2
	Short-eared Owl	0.0	0.0	0.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	0.2
	Sharp-shinned Hawk	0.0	0.0	0.0	0.0	<0.1	0.4	0.0	0.0	0.0	0.0	<0.1	<0.1
	Merlin	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	0.4	0.0	0.0	<0.1	<0.1
	Peregrine Falcon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.0	<0.1	<0.1

¹ Percent composition is the ratio of the number of individuals of a particular species to the total number of individuals among all bird species.

² Frequency is the percent of surveys a particular species was detected.

Table 5. Summary of Avian Flight Heights¹ in Relation to the Turbine Rotor Swept Area (RSA)² during Avian Use Surveys at the Speedway Energy Facility, 2025 – 2026

	Spring 2025		Summer 2025		Fall 2025		Winter 2025-2026		Spring 2026		Overall	
	# Birds	Percent	# Birds	Percent	# Birds	Percent	# Birds	Percent	# Birds	Percent	# Birds	Percent
Non-Raptor												
Above RSA (>179.5m)	9	1.3	1	0.1	0	0.0	0	0.0	0	0.0	10	0.1
At RSA Height (16.5m-179.5m)	17	2.4	67	6.4	461	12.3	1208	45.3	15	4.2	1768	20.8
Below RSA (<16.5m)	418	60.1	799	76.2	3028	81.1	969	36.3	207	57.8	5421	63.7
Raptors												
Above RSA (>179.5m)	0	0.0	1	1.1	1	2.2	0	0.0	0	0.0	2	0.8
At RSA Height (16.5m-179.5m)	18	40.9	45	51.7	13	28.3	8	16.0	7	31.8	91	36.5
Below RSA (<16.5m)	23	52.3	28	32.2	16	34.8	33	66.0	8	36.4	108	43.4

¹ Includes flying birds only.² These values assume a Vestas 4.5 MW Turbine with a Rotor Diameter of 163 m and a Hub Height of 98 m.

Table 6. Avian Flight Height Characteristics in Relation to the Turbine Rotor Swept Area (RSA)¹ at the Speedway Energy Facility, 2025 – 2026

	Encounter Rate ²	Mean Use ³	Percent Flying	Percent Above RSA Height	Percent At RSA Height	Percent Below RSA Height
Non-Raptor						
Canada Goose	4.75	5.43 (0 - 12.99)	93.8	0.0	93.4	0.4
Horned Lark	1.35	8.52 (6.63 - 10.41)	91.0	0.0	17.4	73.6
Unidentified Blackbird	0.53	0.54 (0 - 3.91)	100.0	0.0	97.3	2.7
European Starling	0.35	7.68 (0 - 18.17)	94.8	0.0	4.9	89.9
Barn Swallow	0.22	0.79 (0.3 - 1.28)	99.4	0.0	27.8	71.6
Cliff Swallow	0.20	0.85 (0.17 - 1.54)	98.3	0.0	23.6	74.7
Common Raven	0.14	0.82 (0.74 - 0.89)	74.9	0.6	22.8	51.5
Red-winged Blackbird	0.14	8.61 (0 - 18.85)	98.7	0.0	1.6	97.2
Cackling Goose	0.13	0.13 (0 - 0.53)	100.0	0.0	100.0	0.0
Mallard	0.03	0.79 (0 - 2.32)	24.7	0.0	15.4	9.3
American Robin	0.03	0.13 (0 - 0.26)	73.1	0.0	30.8	42.3
Vaux's Swift	0.02	<0.1 (0.02 - 0.13)	100.0	0.0	26.7	73.3
Eurasian Collared-Dove	0.02	0.39 (0 - 1.14)	87.3	0.0	5.1	82.3
Gadwall	0.02	0.15 (0 - 0.53)	38.7	0.0	29.0	9.7
Tree Swallow	0.01	0.25 (0.06 - 0.43)	100.0	18.0	6.0	76.0
Raptors						
Turkey Vulture	0.12	0.17 (0 - 0.42)	97.1	0.0	76.5	20.6
Red-tailed Hawk	0.09	0.3 (0.27 - 0.34)	66.1	0.0	45.2	21.0
Swainson's Hawk	0.07	0.1 (0.08 - 0.12)	90.5	0.0	71.4	19.0
Rough-legged Hawk	0.05	0.1 (0.04 - 0.16)	100.0	0.0	47.6	52.4
Northern Harrier	0.02	0.24 (0.2 - 0.27)	100.0	0.0	10.4	89.6
American Kestrel	0.01	0.23 (0.2 - 0.25)	54.3	0.0	8.7	45.7

¹ These values assume a Vestas 4.5 MW Turbine with a Rotor Diameter of 163 m and a Hub Height of 98 m.

² Species with encounter rates < 0.01 are not shown in this table.

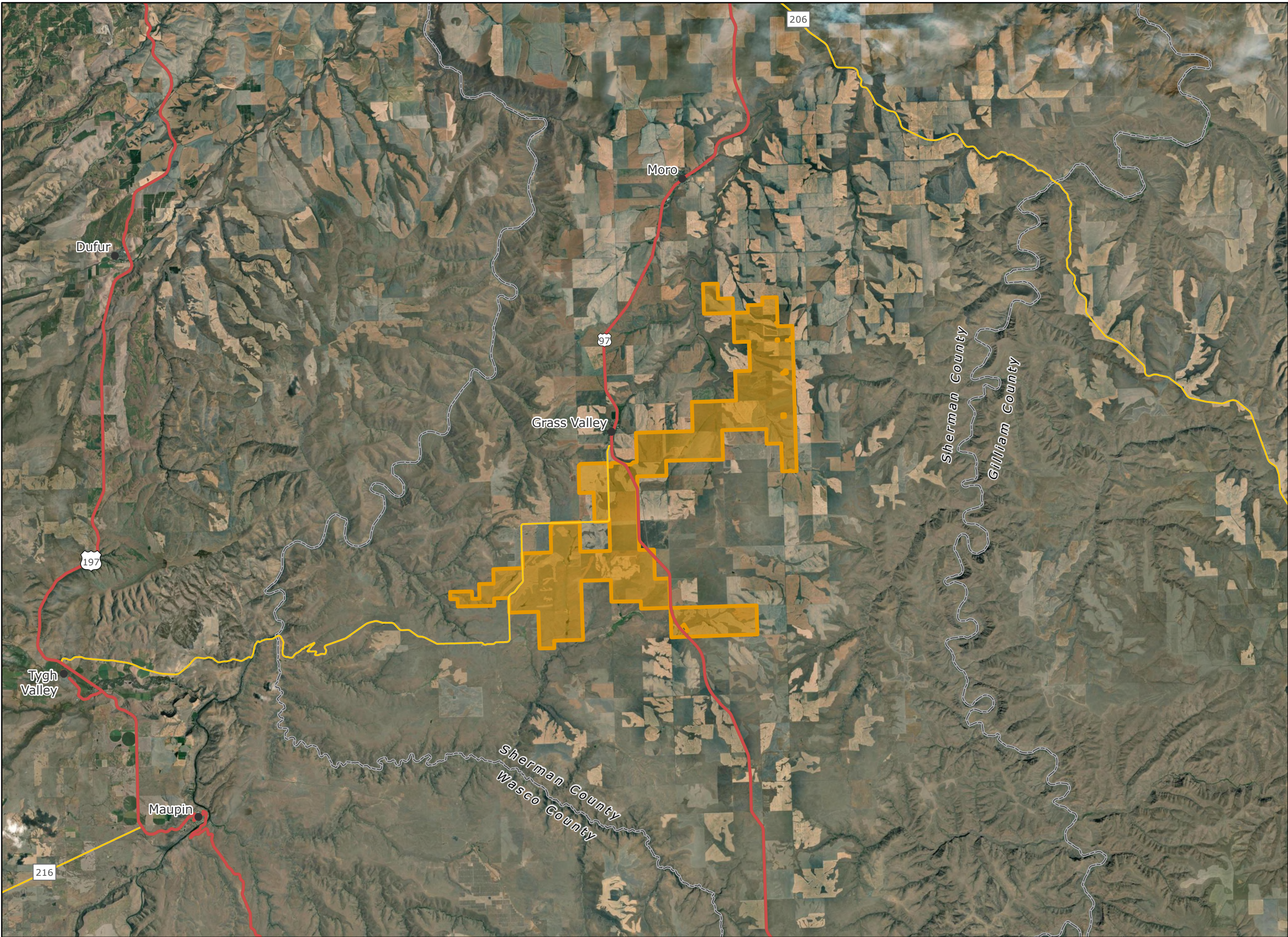
³ Mean use = # birds/20-min. survey.

Table 7. Incidental Observations Recorded at the Speedway Energy Facility, 2025 – 2026

Species	Number Observed
Northern Harrier	92
Swainson's Hawk	54
American White Pelican	7
Bald Eagle	7
Golden Eagle	4
Peregrine Falcon	2
Sage Thrasher	2
Short-eared Owl	2

FIGURES

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Speedway Energy Facility

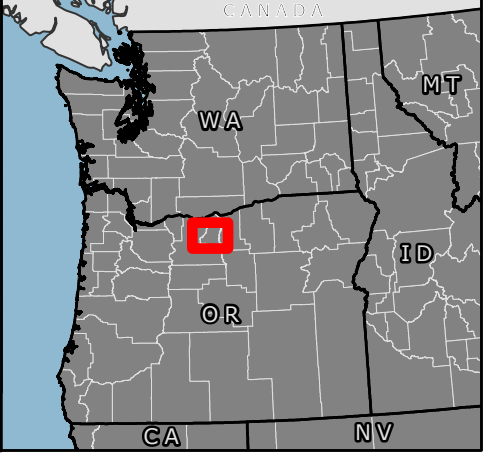
Figure 1
Project Location

SHERMAN COUNTY, OR

-  Project Area (12-18-2024)
-  City/Town
-  County Boundary
-  US Highway
-  State Highway

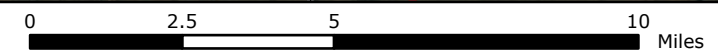


Reference Map



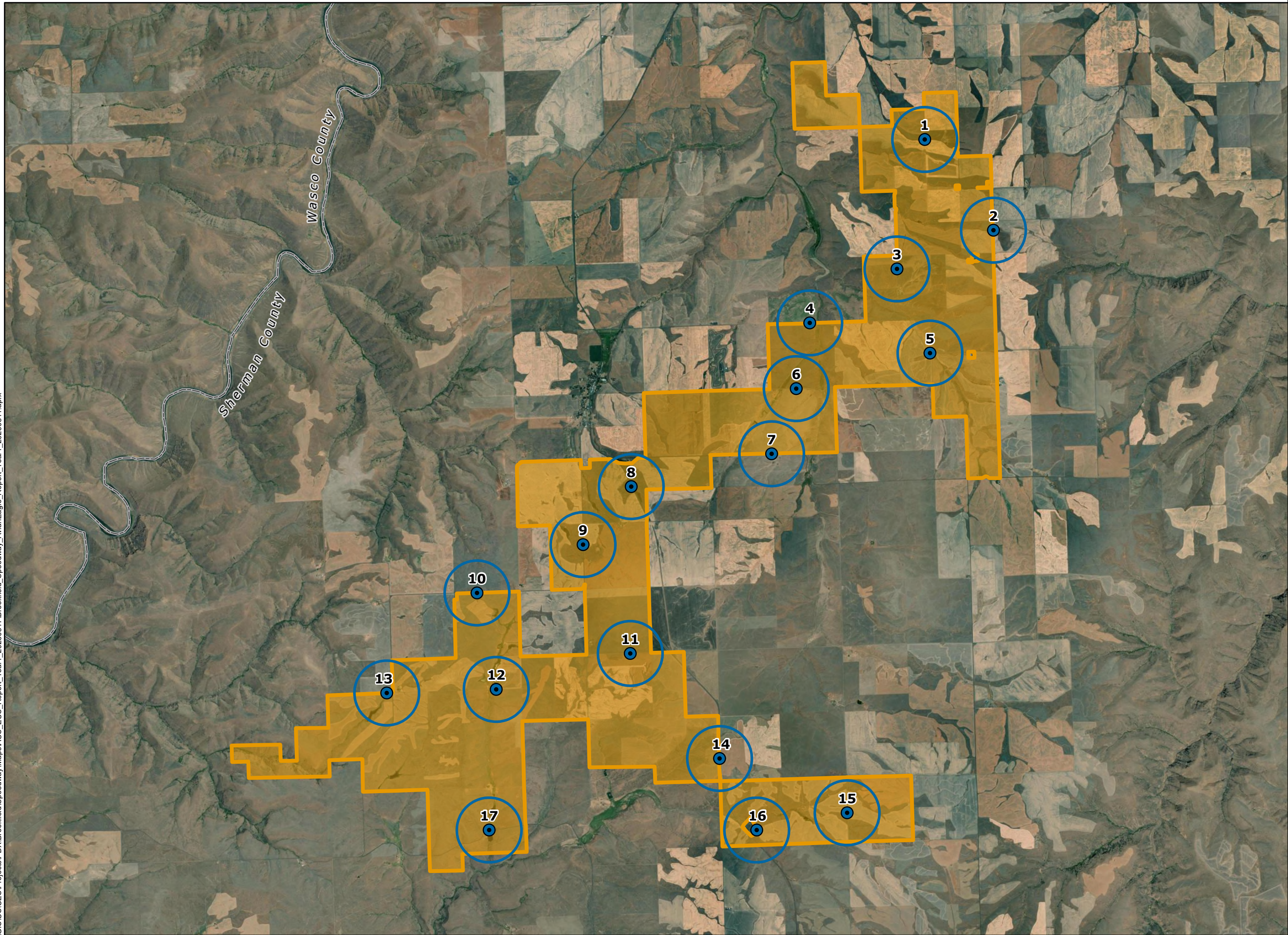
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Speedway Energy Facility

Figure 2
Point-Count Location Map
April 2025 - March 2026

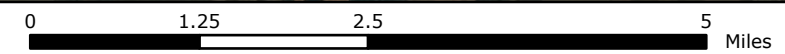
SHERMAN COUNTY, OR

- Project Area (12-18-2024)
- County Boundary
- Point-Count Location**
 - Avian and Eagle Use Survey
- Point-Count Buffer (800-meter)**
 - Avian and Eagle Use Survey



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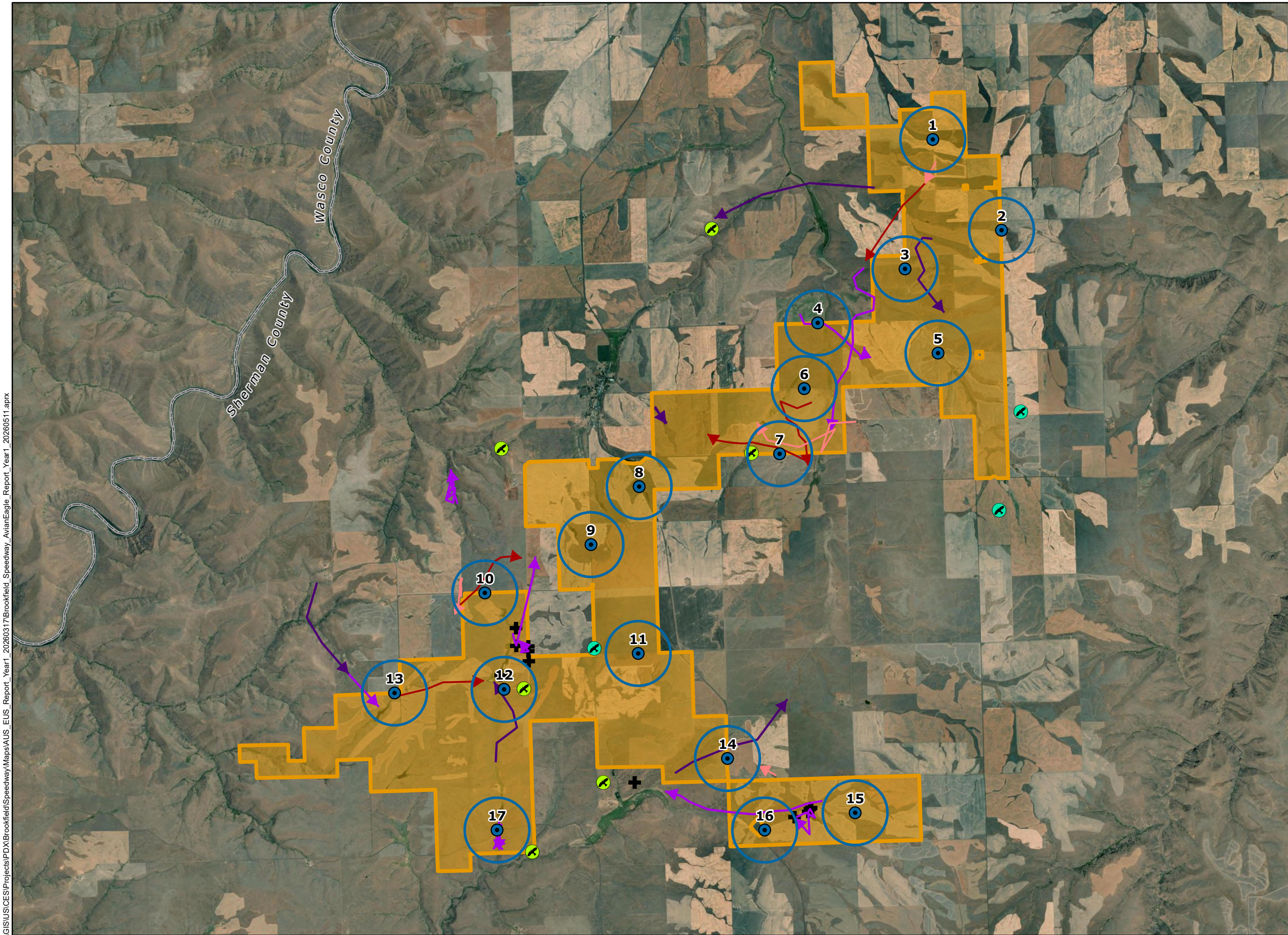
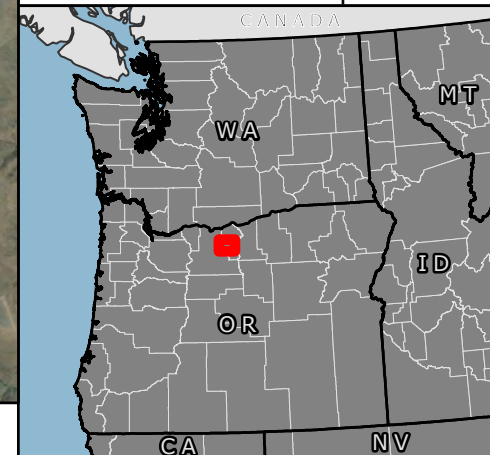
Speedway Energy Facility

Figure 3
Eagle Observations
April 2025 - March 2026

SHERMAN COUNTY, OR

- Project Area (12-18-2024)
 - County Boundary
 - Point-Count Location**
 - Avian and Eagle Use Survey
 - Point-Count Buffer (800-meter)**
 - Avian and Eagle Use Survey
 - Eagle Observations**
 - Incidental Bald Eagle Observation
 - Incidental Golden Eagle Observation
 - Bald Eagle Perch Point
 - Bald Eagle Flight Path, Above 200m
 - Bald Eagle Flight Path, Below 200m
 - Golden Eagle Flight Path, Above 200m
 - Golden Eagle Flight Path, Below 200m
- TETRA TECH Brookfield
Renewable Energy Partners

Reference Map



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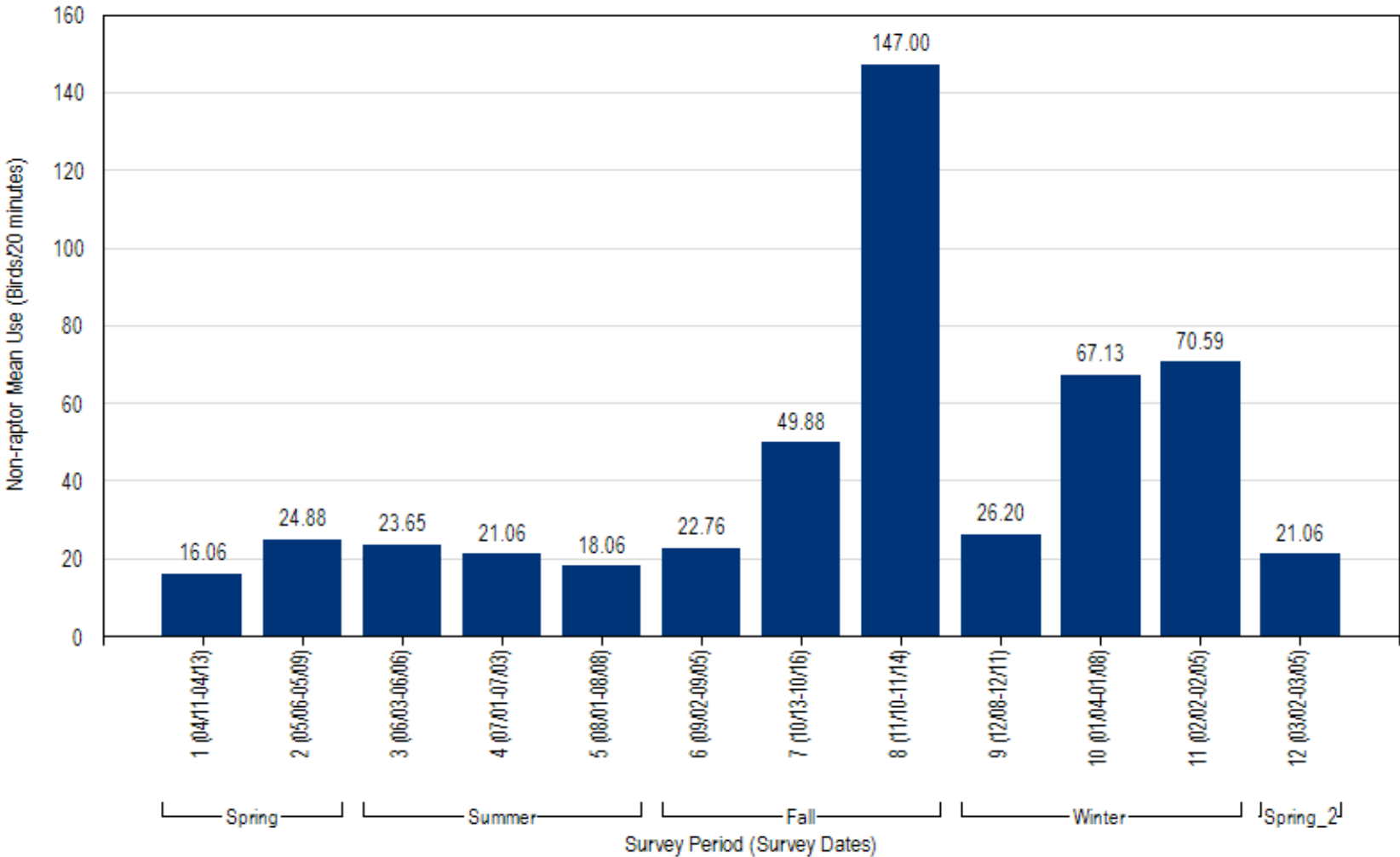
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0 1.25 2.5 5 Miles

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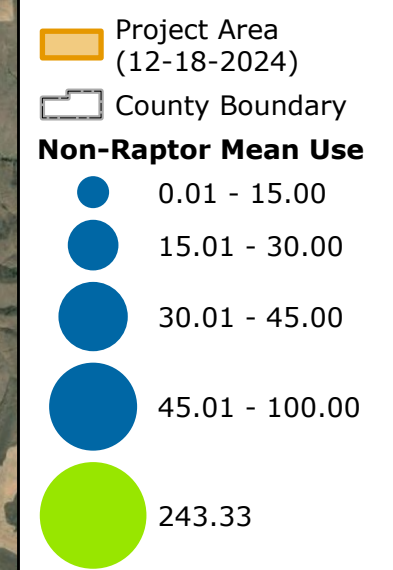
Figure 4. Non-raptor Mean Use by Survey Period at the Speedway Energy Facility, 2025 - 2026



Speedway Energy Facility

Figure 5
Non-Raptor Mean Use
by Survey Point
April 2025 - March 2026

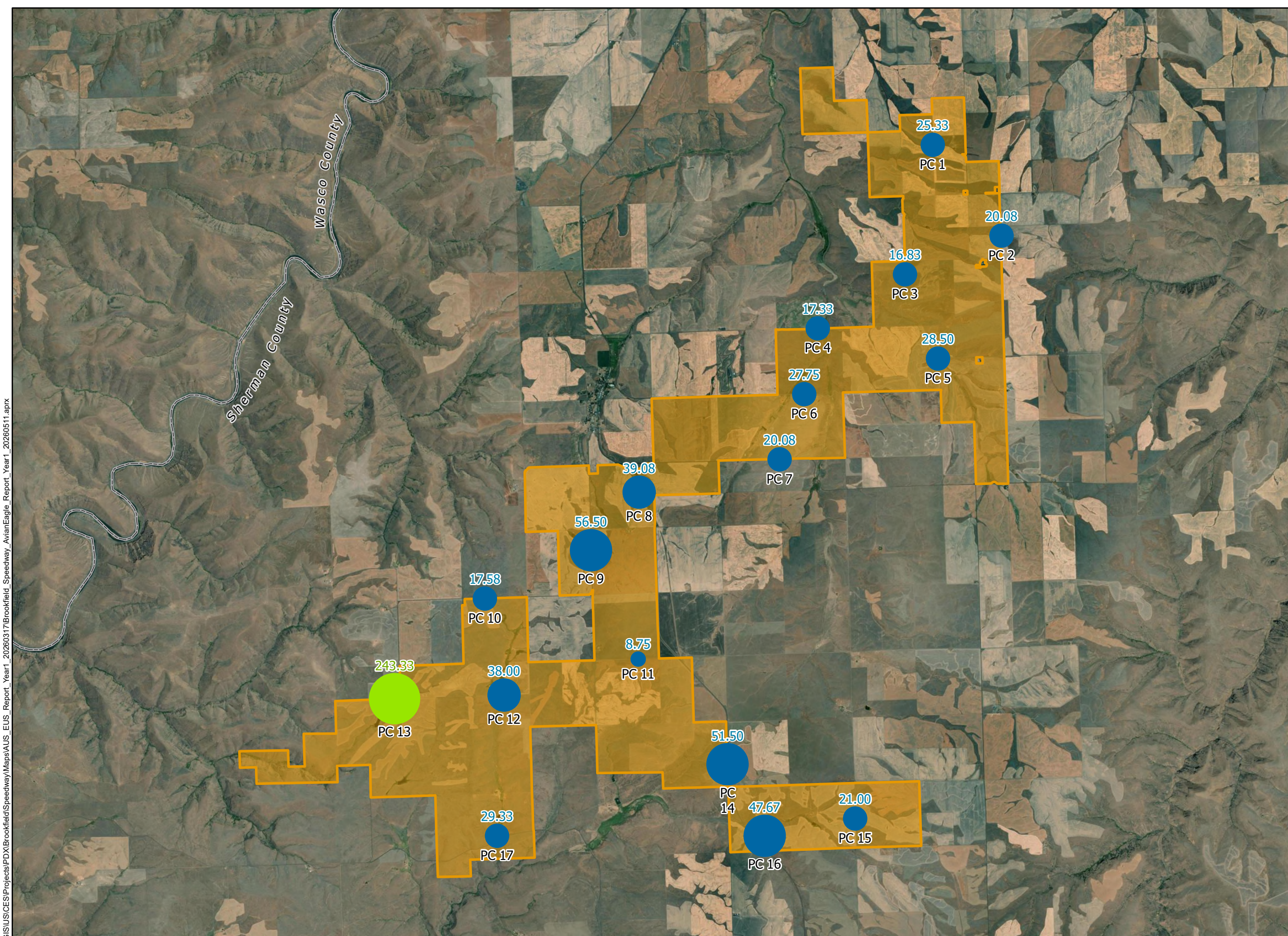
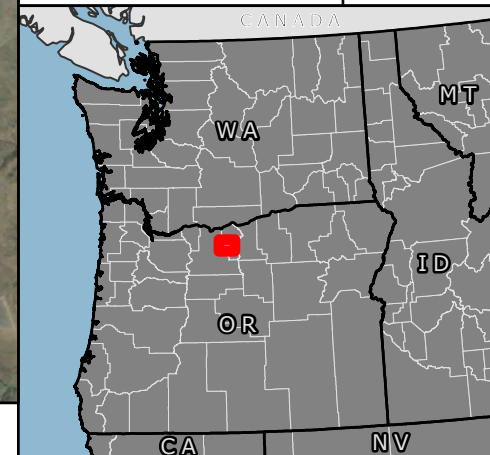
SHERMAN COUNTY, OR



Mean-use Value
PC# Point-count Number



Reference Map

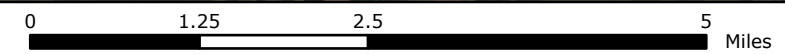


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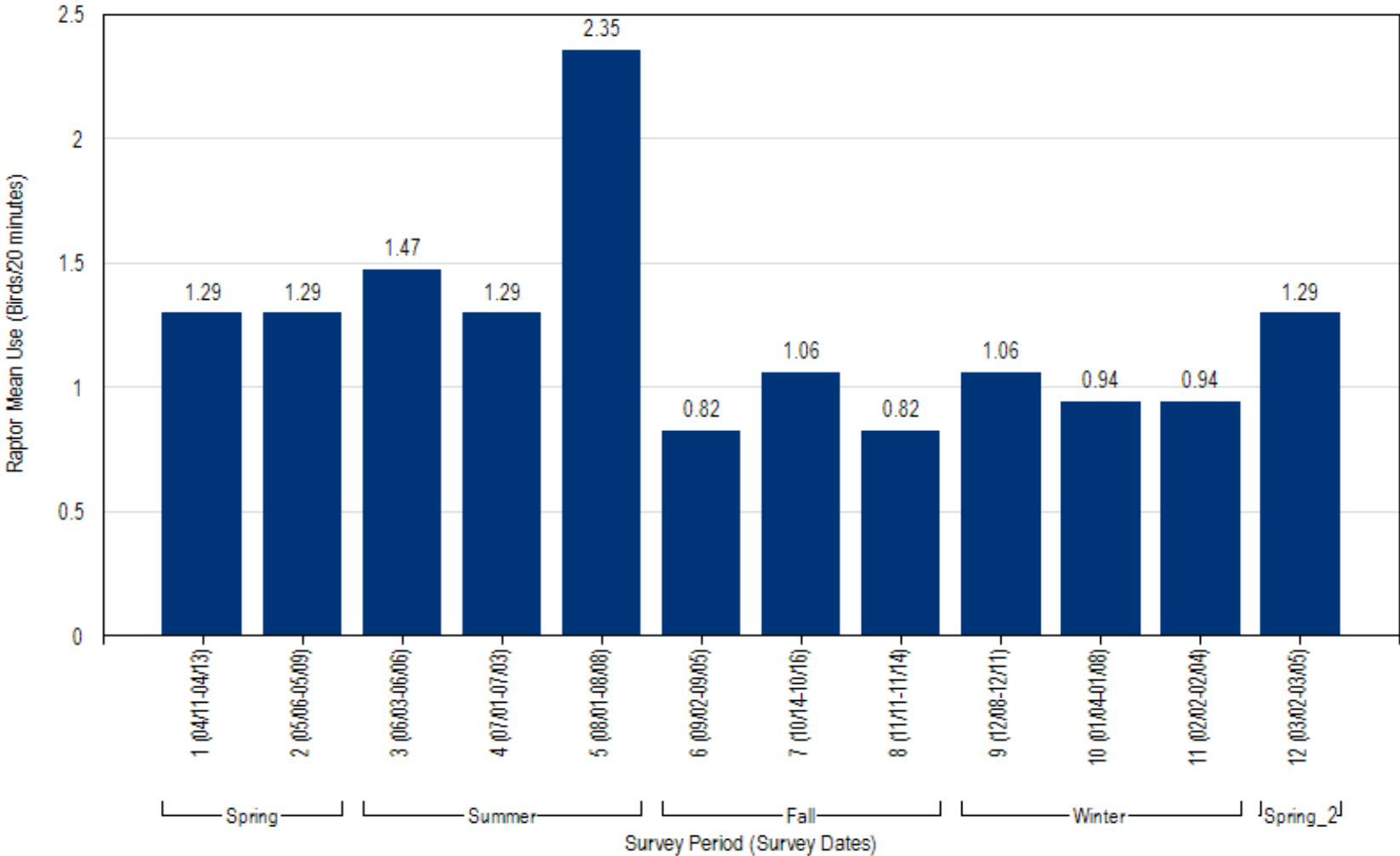
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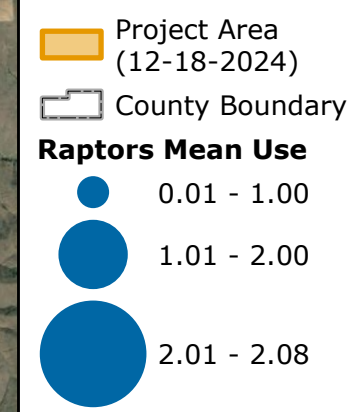
Figure 6. Raptor Mean Use by Survey Period at the Speedway Energy Facility, 2025 - 2026



Speedway Energy Facility

Figure 7
Raptor Mean Use
by Survey Point
April 2025 - March 2026

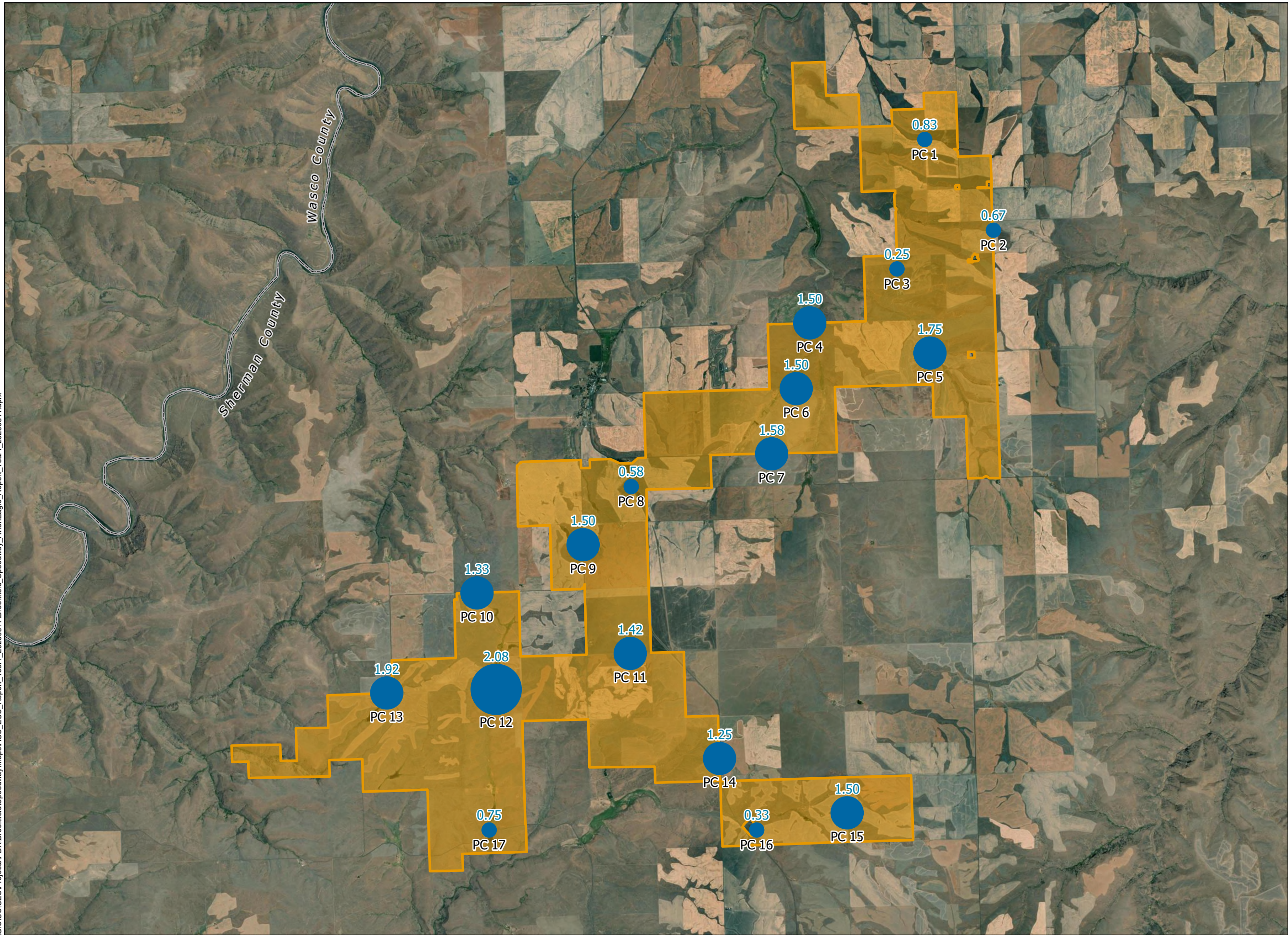
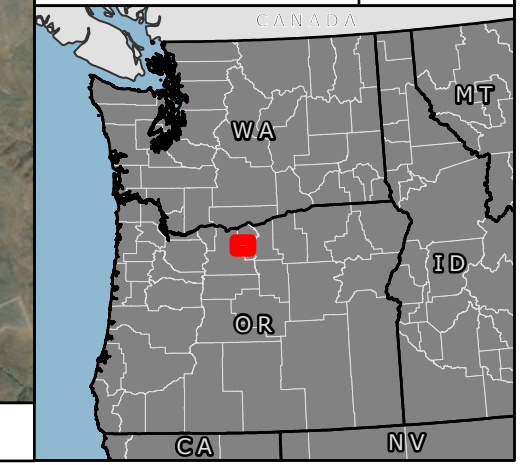
SHERMAN COUNTY, OR



Mean-use Value
PC# Point-count Number



Reference Map

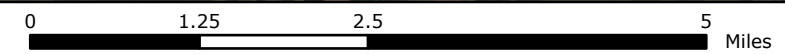


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2023 Raptor Nest Survey Report

Speedway Solar Project

Prepared for:

Brookfield
Renewable

Prepared by:



1750 S Harbor Way, Suite 400
Portland, Oregon 97201

August 2023

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Table 1. Speedway Solar Project 2023 Raptor Nest Survey Results

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Figure 1. 2023 Speedway Solar Project Raptor Nest Survey Results

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1.0 Introduction

Brookfield Renewable (Brookfield) plans to develop the Speedway Solar Project (Project) located in Sherman County, Oregon, east of the town of Grass Valley (Figure 1). As part of its environmental due diligence, Brookfield contracted Tetra Tech, Inc. (Tetra Tech) to conduct raptor nest surveys for the Project in support of an Application for Site Certificate (ASC) through the Oregon Department of Energy's (ODOE) Energy Facility Siting Council (EFSC). The survey area covered a 1-mile buffer around the Project Area (Figure 1). The objective of the surveys was to inventory raptor nests within the survey area to identify breeding raptors that could be affected by the proposed solar facility. The surveys were designed in accordance with EFSC standards set forth in Oregon Administrative Rules 345-021-0010(1)(p). Solar projects. The U.S. Fish and Wildlife Service (USFWS) and the Oregon Department of Fish and Wildlife (ODFW) have not issued guidance pertaining to raptor nest surveys for solar projects, but both agencies have concurred with the buffer and methodology used for this survey on other solar projects and the survey area exceeds the raptor nest buffers recommended for other renewable energy projects permitted through the EFSC (300 feet to 0.5 miles).

2.0 MBTA and BGEPA

Raptors and other migratory birds are protected under the Migratory Bird Treaty Act (MBTA). Bald and golden eagles are also protected under the Bald and Golden Eagle Protection Act (BGEPA). These acts prohibit anyone without a permit from the USFWS from "taking" any part of these birds, their eggs, or their nests. This includes removing an active nest or disturbing an adult bird so that it abandons the nest, causing the eggs or young to die.

3.0 Review of Existing Data

Prior to the surveys, Tetra Tech reviewed raptor nest data from the Oregon Biodiversity Information Center (ORBIC) and the Oregon Eagle Foundation (EOF). Neither ORBIC nor EOF had any raptor nest records within the survey area. The nearest known golden eagle nest is approximately 2 miles to the west of the northern portion of the Project Area (ORBIC 2022, Leal 2020). No known bald eagle nests were identified. Bald eagle nesting sites are generally associated with aquatic foraging areas (Buehler 2022). Although bald eagles may use the Project Area during migration or winter, they are not expected to nest in or near the Project based on a lack of suitable habitat conditions.

4.0 Methods

4.1 Field Surveys

Two rounds of aerial surveys were performed to facilitate a complete inventory of nest locations and accurate nest occupancy determinations. The initial survey was conducted on April 15, 2023, during the early nesting period for most raptors in the region (when most breeding pairs exhibit courtship, nest-building, and/or incubation behaviors). The second survey was conducted on June 3, 2023, when most raptors in the region are engaged in mid- to late-breeding season reproductive activities (e.g., brooding, feeding nestlings). The surveys were conducted from a Bell 206B3 helicopter (JL Aviation based in Boring, Oregon). The crew consisted of a pilot and two Tetra Tech biologists for safety reasons and to minimize the chance of missing nests.

The helicopter flew north to south-oriented transects spaced 0.5 miles apart over the survey area. The helicopter deviated from the transects for closer inspection of areas of quality nesting habitat as needed. The transects were shifted by 0.25 miles to the east during the second round to provide more complete coverage by increasing the overall number of transects and reducing the spacing between the transects. While searching for nests, the helicopter flew at a speed of 30-40 knots and an altitude of approximately 200 feet above ground level. The speed and altitude became slower and lower as needed for inspection of nests and other areas of interest. Private residences and livestock were avoided or flown over at a higher altitude to keep disturbance to a minimum.

The surveyors documented all raptor nests, concentrations of eagle prey resources (e.g., herds of big game, carrion, etc.) and incidental observations of eagles observed within the survey area. During the second survey, surveyors checked the status of raptor nests located during the initial survey and searched for any late-nesting raptors within the survey area.

4.2 Data Collection

A tablet computer with ArcGIS mapping software and electronic data forms was used during the surveys to aid in navigation and record data. For each nest, the following data were collected:

- **Nest Identification Number:** Unique numeric identifier assigned to each nest site that also represents a geographical location determined by latitude and longitude coordinates.
- **Species:** If identified, the species was recorded. If the species using the nest could not be determined, it was recorded as unknown.
- **Adult Present:** Proximity of the adult to the nest (e.g., on nest, nearby, or unknown).
- **Eggs or Young:** Number of eggs or young observed.
- **Nest Size:** Classified as large or small. Small nests were those estimated by the biologist as less than 24 inches in diameter, comprised of smaller sticks, and with other characteristics typical of nests used by smaller raptors and not by eagles. Large nests were those estimated by the biologist as 24 inches or greater in diameter, comprised of larger sticks, and with other characteristics typical of nests used by eagles and other large raptors.

- **Nest Substrate:** Structure in which the nest was located (e.g., broadleaf tree, cliff, artificial nest structure, etc.).
- **Nest Height:** Height relative to the structure it was on (e.g., on top of a transmission pole, 3/4 of height of tree).
- **Nest Status:** To assess nest status, the following terms were adapted from the 2016 Eagle Rule (USFWS 2016) and Postupalsky (1974):
 - Inactive: Defined by the absence of any adult, egg, or dependent young at the nest, or signs of building or adding to the nest in preparation for egg-laying. This term is specific to non-eagle nests.
 - In-use: The presence of eggs, dependent young, or adult on the nest, or signs of building or adding to the nest in preparation for egg-laying. This term applies to eagle and non-eagle nests.
 - Alternate: One of potentially several nests within an eagle territory that is not an in-use nest at the time of surveys. When there are no in-use nests, all nests in the territory are alternate nests. This term is specific to eagle nests.
 - Unknown: A nest not detected during the first round of surveys, which may have gone undetected or been built subsequent to the survey, or a nest that is present but for which surveyors are unable to determine status (e.g., vegetation around the nest site obscured the view of nest, etc.). This term applies to eagle and non-eagle nests.
 - No Longer Present: A nest that was located during a previous survey but has subsequently been positively ascertained to be destroyed and no evidence of the nest remains. This term applies to eagle and non-eagle nests.
 - Not Found: A previously known nest that could not be located (e.g., access limitations), but that may still exist (not the same as “No Longer Present” above). This term applies to eagle and non-eagle nests.
 - Not Surveyed: A known nest that occurred outside of the given survey area or that could not be surveyed due to other reasons (e.g., inaccessible to helicopter, too close to a residence, nearby cattle, etc.). This term applies to eagle and non-eagle nests.
 - Failed: A nest for which evidence indicates nest initiation (egg-laying), but the nest failed to produce any chicks to fledging age. This term applies to eagle and non-eagle nests.
- **Nest Condition:** To assess nest condition, the following criteria were used (Postupalsky 1974):
 - Excellent: Defined cup or nest bowl with a well-maintained rim; adult or young present.
 - Good: Nest bowl intact and rim defined with minor sagging.

- Fair: Nest bowl intact but rim is heavily sloughing or sagging. Nest would need minor repair to be reused.
- Poor: Loose structure of nest bowl still present but much of rim has fallen apart. Nest would need major repair to be used.
- Remnant: Nest bowl not defined; scant material remaining and not usable unless fully rebuilt.
- Unknown: The nest cannot be found, was not surveyed, or the nest is present, but because of its location, a determination cannot be made.
- Not Applicable: Nest no longer present.

5.0 Results and Discussion

No eagle nests, or large nests likely to be used by eagles, were found during the surveys. Twelve raptor nests were detected during the surveys, including five in-use red-tailed hawk nests, two in-use Swainson's hawk nests, one in-use great horned owl nest, and four small inactive nests with unknown species determinations (Table 1, Figure 1). There was one inactive nest present during the initial survey that was not checked during the second survey because of nearby cattle (Table 1, nest 100); this nest was included in the totals and is shown on the report figure.

The topography within the survey area is relatively flat and open. The land is primarily used for agricultural purposes, consisting of farming and ranching activities. The nests were distributed throughout the survey area and most were found in trees along drainages. Of the 12 nests, 11 were in trees (seven in broadleaf trees, three in snags, and one in a conifer) and one was on a cliff (Table 1). No eagles, state or federally listed threatened or endangered species, or eagle prey concentrations were documented during the surveys.

Red-tailed hawk, Swainson's hawk, and great horned owl were the only raptor species observed nesting in the survey area. Both red-tailed hawk and great horned owl use a wide range of nesting habitats and are common in eastern Oregon. The Swainson's hawk has been designated as a state sensitive species by ODFW (ODFW 2021). The sensitive species designation encourages but does not require the implementation of conservation actions for the species. The Swainson's hawk has relatively large area requirements. Significant losses of grassland habitat have contributed to declines of this species (OCS 2016). In addition to the state sensitive designation for Swainson's hawks, all of these species are protected by the MBTA.

Although often reused, raptor nest locations can vary from year to year based on factors such as food supply, nest-site availability, and weather conditions. To avoid potential disturbance to active nests, vegetation removal should occur outside of the breeding season (i.e., September to February). If the construction schedule does not allow for vegetation removal outside of the breeding season, additional raptor nest surveys of the impacted areas should be conducted prior to the start of construction activities. If active raptor nests are found during the surveys, buffer zones should be created around the nests until the nests have ceased to be active.

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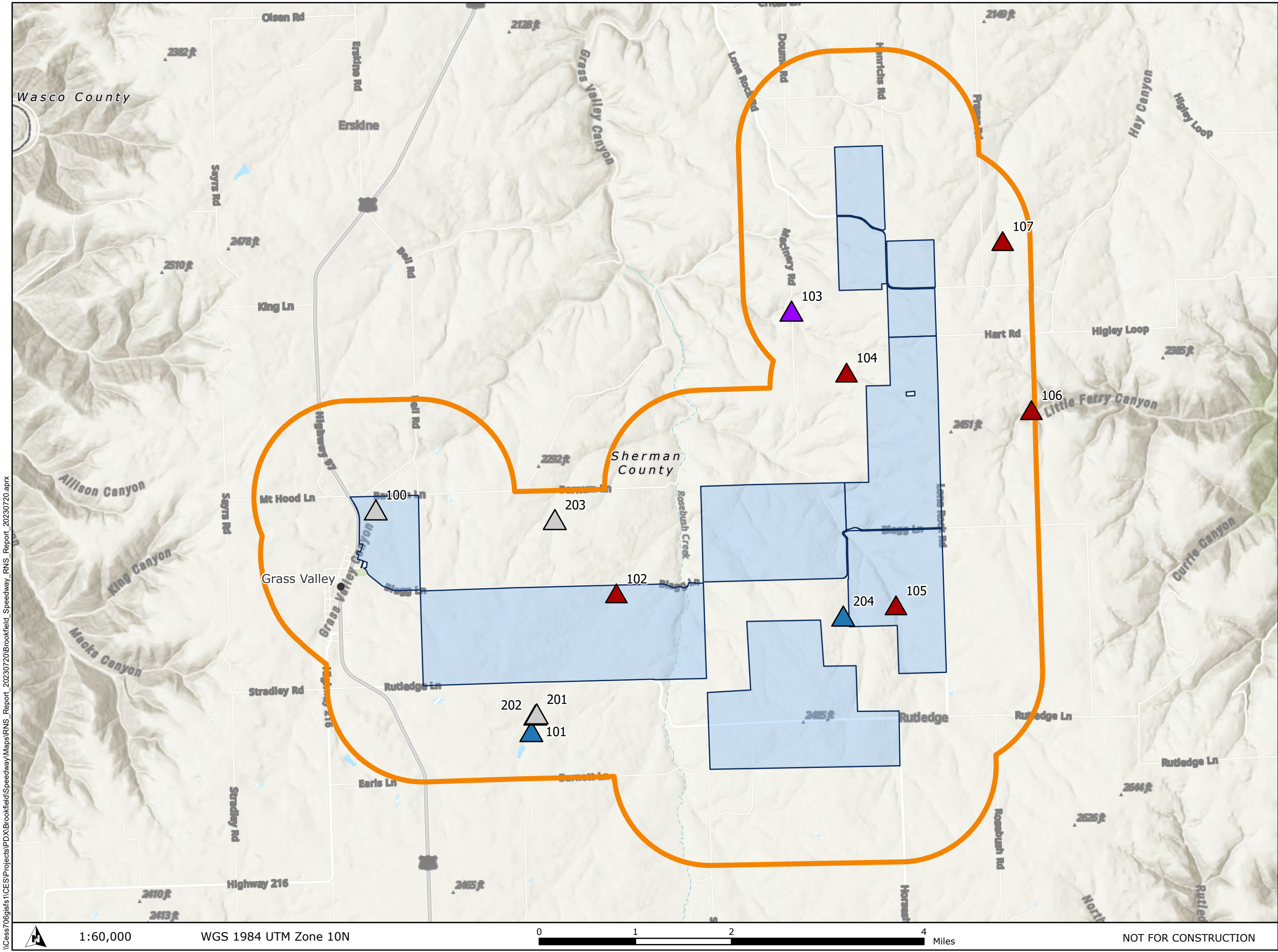
Table 1. Speedway Solar Project 2023 Raptor Nest Survey Results

Nest ID	Report Species	First Survey Nest Status	Second Survey Nest Status	Nest Size Class	First Survey Nest Condition	Second Survey Nest Condition	Nest Substrate	Pertinent Survey Notes
103	Great horned owl	Inactive	In-use	Small	Poor	Poor	Snag	
102	Red-tailed hawk	In-use	In-use	Small	Excellent	Excellent	Broadleaf tree	
104	Red-tailed hawk	In-use	In-use	Small	Excellent	Excellent	Broadleaf tree	
105	Red-tailed hawk	In-use	In-use	Small	Excellent	Excellent	Broadleaf tree	
106	Red-tailed hawk	In-use	In-use	Small	Excellent	Excellent	Conifer tree	
107	Red-tailed hawk	In-use	Inactive	Small	Excellent	Good	Snag	
101	Swainson's hawk	Inactive	In-use	Small	Excellent	Excellent	Broadleaf tree	
204	Swainson's hawk	Unknown	In-use	Small	Unknown	Excellent	Snag	
100	Unknown	Inactive	Not Surveyed	Small	Good	Unknown	Broadleaf tree	Unable to check during the second survey due to nearby cattle.
201	Unknown	Unknown	Inactive	Small	Unknown	Good	Broadleaf tree	
202	Unknown	Unknown	Inactive	Small	Unknown	Good	Broadleaf tree	
203	Unknown	Unknown	Inactive	Small	Unknown	Excellent	Cliff	

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Figures

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Speedway Solar Project

Figure 1
2023 Raptor Nest
Survey Results

SHERMAN COUNTY, OR

- Project Area
- Survey Area (1-mile Buffer)
- City/Town
- County Boundary
- State Boundary
- Species, Nest Status, Nest Size Class**
 - Great horned owl, In-use, Small (1)
 - Red-tailed hawk, In-use, Small (5)
 - Swainson's hawk, In-use, Small (2)
 - Unknown, Inactive, Small (4)



Reference Map



1:60,000

WGS 1984 UTM Zone 10N

0 1 2 4 Miles

NOT FOR CONSTRUCTION

2025 Raptor Nest Survey Report

Speedway Energy Facility

Prepared for:



BGTF Speedway Project LLC

Prepared by:



1750 S Harbor Way, Suite 400
Portland, Oregon 97201

June 2025

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Table 1. Speedway Energy Facility 2025 Raptor Nest Survey Results

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Figure 1. Speedway Energy Facility 2025 Raptor Nest Survey Results– Confidential

1.0 Introduction

BGTF Speedway Project LLC (BGTF) plans to develop the Speedway Energy Facility (Facility) located east and south of the City of Grass Valley, in Sherman County, Oregon (Figure 1). The Project Area encompasses approximately 21,975 acres of private land. As part of its environmental due diligence, BGTF¹ contracted Tetra Tech to conduct an additional year of raptor nest surveys for the Facility during the 2025 breeding season in support of an Application for Site Certificate through the Oregon Energy Facility Siting Council. The Survey Area encompassed a 2-mile buffer around the Project Area and included approximately 102,714 acres (Figure 1). The purpose of the surveys was to inventory raptor nests within the Survey Area to support Facility permitting and inform potential avoidance and minimization measures.

2.0 Regulatory Context

The surveys were designed in accordance with the voluntary U.S. Fish and Wildlife Service (USFWS) Land-based Wind Energy Guidelines (WEG; USFWS 2012), Stage 2 of the Eagle Conservation Plan Guidance (ECPG; USFWS 2013), the Updated Eagle Nest Survey Protocol (USFWS 2020), the 2024 Eagle Rule (USFWS 2024a), as well as Energy Facility Siting Council standards set forth in Oregon Administrative Rules 345-021-0010(1)(p).

The ECPG and 2024 Eagle Rule recommend that at least 2 years of pre-construction raptor nest surveys be conducted at wind energy project sites. The first year of raptor nest surveys at the Facility was conducted in 2023 (Tetra Tech 2023). Nests recorded during the 2023 surveys at the Facility included Swainson's hawk nests, great horned owl nests, red-tailed hawk nests and small inactive nests. Because BGTF was planning to construct a solar project at the time of the 2023 surveys, the 2023 Survey Area encompassed the previous 7,061-acre Project Area plus a 1-mile buffer. Since then, BGTF has expanded the Project Area and is now planning to develop a hybrid wind/solar project. Because of changes in the Facility boundary and survey buffer, the 2025 Survey Area covered a larger area than in 2023.

Raptors and other migratory birds are protected under the Migratory Bird Treaty Act (MBTA). Bald and golden eagles are also protected under the Bald and Golden Eagle Protection Act (BGEPA). These acts prohibit anyone without a permit from the USFWS from "taking" any part of these birds, their eggs, or their nests. This includes removing an active nest or disturbing an adult bird so that it abandons the nest, causing the eggs or young to die.

¹ References to BGTF generally include or also refer to the parent company and predecessor in interest to the project, Brookfield Renewable N.A., except where specifically noted.

3.0 Review of Existing Data

Tetra Tech reviewed raptor nest data from several sources including the Oregon Biodiversity Information Center ORBIC 2025), the Oregon Eagle Foundation (Leal 2020), and the results from the 2023 surveys at the Facility (Tetra Tech 2023). The data review identified 13 previously known nests, including one historical golden eagle nest within the Survey Area (Nest 1; Table 1). There is very little information associated with this golden eagle nest; it was discovered prior to 1982, and other than noting that the nest may have been occupied in 2015, there is no other information about occupancy of the nest or other survey efforts since its initial discovery (Leal 2020, ORBIC 2025). Nest 1 was not checked in 2023 as it was outside the previous survey area.

4.0 Methods

4.1 Field Surveys

Two rounds of aerial surveys were performed to facilitate a complete inventory of nest locations and accurate nest occupancy determinations. The initial survey was conducted on March 11, 2025, during the early nesting period when most breeding pairs of raptors in the region exhibit nest-building or incubation behaviors. The second survey was conducted on May 11, 2025, when most raptors in the region are engaged in mid- to late-breeding season reproductive activities (e.g., brooding, feeding nestlings). The surveys were conducted from a Bell 206B3 Jet Ranger helicopter (JL Aviation based in Boring, Oregon). The crew consisted of a pilot and two Tetra Tech biologists to maximize safety and minimize the chance of missing nests.

While searching for nests, the helicopter flew north-to-south-oriented transects spaced 1 mile apart over the entire Survey Area. The helicopter deviated from the transects for closer inspection of areas of quality nesting habitat, and check previously documented nests, as needed. The transects were shifted by 0.5 miles during the second round to provide more complete coverage of the Survey Area by increasing the overall number of transects and reducing the spacing between the transects. The helicopter flew at a speed of 30 to 40 knots and an approximate altitude of 200 feet above ground. The helicopter's speed and altitude were reduced as needed for the inspection of nests and other areas of interest. Private residences and livestock were avoided or flown over at higher altitudes to keep disturbance to a minimum.

During both survey rounds, the surveyors checked the status of known raptor nests and searched for new, previously unidentified raptor nests. The surveyors documented all raptor nests, common raven nests, concentrations of eagle prey resources (e.g., herds of big game, carrion, etc.), and incidental observations of eagles. Although not raptors, common raven nests were documented because they could be used by nesting raptors during subsequent breeding seasons.

4.2 Data Collection

Tablet computers with ArcGIS mapping software and electronic data forms were used during the surveys to aid in navigation and record data. For each nest, the following data were collected:

- **Nest Identification Number:** Each nest site was assigned a unique identification number, which, when combined with its latitude and longitude, allows for the precise identification and location of that specific nest site.
- **Species:** If identified, the species was recorded. If the species using the nest could not be determined, it was recorded as unknown.
- **Adult Present:** Proximity of the adult to the nest (e.g., on nest, nearby, or unknown).
- **Eggs or Young:** Number of eggs or young observed.
- **Nest Size:** Classified as large or small. Small nests were those estimated by the biologists as having a diameter of less than 24 inches, comprised of smaller sticks, and with other characteristics typical of nests used by smaller raptors and not by eagles. Large nests were those estimated by the biologists as having a diameter of 24 inches or greater, comprised of larger sticks, and with other characteristics typical of nests used by eagles and other large raptors.
- **Nest Substrate:** Structure in which the nest was located (e.g., broadleaf tree, cliff, artificial nest structure, etc.).
- **Nest Status:** To assess nest status, the following terms were adapted from the 2024 Eagle Rule (USFWS 2024a) and Postupalsky (1974):
 - Inactive: Defined by the absence of any adult, egg, or dependent young at the nest, or signs of building or adding to the nest in preparation for egg-laying. This term is specific to non-eagle nests.
 - In-use: The presence of eggs, dependent young, or adult on the nest, or signs of building or adding to the nest in preparation for egg-laying. This term applies to eagle and non-eagle nests.
 - Alternate: One of potentially several nests within an eagle territory that is not an in-use nest at the time of surveys. When there is no in-use nest, all nests in the territory are alternate nests. This term is specific to eagle nests.
 - Unknown: A nest not detected during the first round of surveys which may have gone undetected or been built subsequent to the survey, or a nest that is present but for which surveyors are unable to determine status (e.g., vegetation around the nest site obscured the view of nest, etc.). This term applies to eagle and non-eagle nests.
 - No Longer Present: A nest that was located during a previous survey but has subsequently been positively ascertained to be destroyed and no evidence of the nest remains. This term applies to eagle and non-eagle nests.

- Not Found: A previously known nest that could not be located (e.g., access limitations), but that may still exist (not the same as “No Longer Present” above). This term applies to eagle and non-eagle nests.
- Not Surveyed: A known nest that occurred outside of the given survey area or that could not be surveyed due to other reasons (e.g., inaccessible to helicopter, the presence of a residence, nearby cattle, etc.). This term applies to eagle and non-eagle nests.
- Failed: A nest for which evidence indicates nest initiation (egg-laying), but the nest failed to produce any chicks to fledging age. This term applies to eagle and non-eagle nests.
- **Nest Condition**: To assess nest condition, the following criteria were used (Postupalsky 1974):
 - Excellent: Defined cup or nest bowl with a well-maintained rim; adult or young present.
 - Good: Nest bowl intact and rim defined; minor repair needed for nest to be used; margins of nest in loose configuration, minor slumping occurring.
 - Fair: Nest bowl intact and nest not dilapidated but needs significant repair in order to be used; material is slumping or sliding.
 - Poor: Loose structure of nest bowl still present; nest walls and side falling out; nest is in need of major repair to be used.
 - Remnant: Nest bowl not defined; scant material remaining and not usable unless fully rebuilt.
 - Unknown: The nest cannot be found, was not surveyed, or the nest is present, but because of its location, a determination cannot be made.
 - Not Applicable: Nest no longer present.

5.0 Results and Discussion

At the completion of the second survey, 72 nests (six previously known nests and 66 new nests) were known to be present within the Survey Area, including two golden eagle nests (one in-use nest and one alternate nest), 17 in-use red-tailed hawk nests, six in-use great horned owl nests, five in-use Swainson’s hawk nests, one in-use prairie falcon nest, eight in-use common raven nests, two small in-use nests with unknown species determinations, and 31 small inactive nests with unknown species determinations (Table 1, Figure 1). Identifying raptor nests can be difficult without the birds’ presence. We were unable to determine the species using two nests because only unattended eggs were present at the nests (Nests 314 and 320; Table 1).

Five of the 13 previously known nests, including golden eagle Nest 1, were confirmed to be no longer present during the 2025 surveys (Table 1). Additionally, a small inactive nest was present

during the initial survey but no longer present during the second survey (Nest 313; Table 1). Nests that were no longer present are not included in the totals above, nor are they depicted in the report figure.

Raptor nesting habitat within the Columbia Basin Plateau, where the Facility is located, includes shrub-steppe and grasslands, cliffs, talus slopes, and artificial nest structures such as transmission towers and old water-pumping windmills. Nests found in trees are often in large, isolated trees, or are associated with riparian areas, as well as windbreaks and old homesteads in mixed cropland and native habitats. The landscape within the Survey Area is open and arid. The habitat primarily consists of grasslands, shrublands, and agricultural lands, intersected by canyons and riparian areas. The land is primarily used for growing crops and raising livestock. Nests were distributed throughout the Survey Area, but most were found in trees along drainages or on cliffs and rocky outcrops found in steeper canyons and ravines. Of the 72 nests known to be present within the Survey Area, 46 were in trees (23 in broadleaf trees, 11 in conifer trees, and 12 in snags), 25 on cliffs, and one was on a rock outcrop (Table 1).

The two golden eagle nests (Nests 301 and 302) were located about 0.8 miles to the southwest of the Project Area (Figure 1). Both nests were located on cliffs. The in-use nest was in excellent condition and the alternate nest was in good condition. Although not currently in-use the condition of the alternate nest implies that it would require minimal repairs before being ready for use by eagles in the future.

Golden eagles often have long-enduring nesting territories (Palmer 1988, Millsap et al. 2015). The size of a golden eagle's territory can vary based on geography, food availability, and eagle density. Golden eagle pairs typically have multiple nests within their territory, and the distance between these nests varies. Some nests may be very close (e.g., less than a meter away on the same cliff shelf), while others can be more than a mile apart. For example, in Idaho, spacing between golden eagle nests ranged from less than 3 feet to 1.7 miles, but 90 percent of all nests were within 1 mile of their closest alternate nest (Slater et al. 2017). The two golden eagle nests detected during these surveys (alternate Nests 301 and in-use 302) are 0.14 miles apart, which indicates that they belong to the same territory. The historical golden eagle nest site (Nest 1, Table 1) confirmed to be no longer present in 2025, is 13 miles from Nests 301 and 302, indicating that the historical nest belonged to a separate nesting territory. Aside from the two golden eagle nests, all other nests recorded during these surveys were small, and not characteristic of nests typically built by or likely to be used by golden eagles or ferruginous hawks (Table 1; WDFW 1996, Shaffer et al. 2019, Katzner et al. 2020 Ng et al. 2020).

No state or federally listed threatened or endangered species were documented during the surveys. The Swainson's hawk is designated as state sensitive species by the Oregon Department of Fish and Wildlife (ODFW; ODFW 2021). The sensitive species designation encourages but does not require the implementation of conservation actions for the species. Swainson's hawks have relatively large area requirements, and the loss and fragmentation of grasslands has contributed to declines of this species (OCS 2016). The Swainson's hawk arrives on its breeding grounds later than most raptors. The species' nesting season generally occurs from March to October, depending on geographic area

(Bechard et al. 2020). In Oregon, egg-laying generally occurs from late April to late May (Adamus 2020). Given that Swainson's hawks were observed in the vicinity of inactive nests during the second survey, some Swainson's hawk nesting attempts may have been missed. In addition to the state sensitive designation for Swainson's hawks and the BGEPA protections provided to eagles, all native raptors in the United States are protected by the MBTA.

Eagle prey concentrations observed incidentally during the surveys consisted of two herds of elk, each with 20 to 30 individuals, observed in the eastern portion of the Survey Area, outside the Project Area (Figure 1). Both herds were observed during the second survey. ODFW designated elk winter range overlaps the southwestern portion of the Survey Area, outside of the Project Area (ODFW 2013). Additionally, although no mule deer were recorded during the surveys, ODFW designated mule deer winter range overlaps the Survey Area, including the southwestern portion of the Project Area (ODFW 2013).

The biologists observed four golden eagles and three bald eagles incidentally during the surveys (Figure 1). Two of the golden eagles were observed with 2 miles of golden eagle Nests 301 and 302, and therefore the eagles may be associated with these nests. Both of these golden eagles were observed during the second survey. All other eagles were observed during the initial survey and appeared to be non-nest associated observations.

Both golden eagle nests detected during these surveys are less than 2 miles from the Project Area. Therefore, the presence of these nests may impact Facility development. If new wind turbines are sited at least 2 miles from golden eagle nests (and at least 660 feet from bald eagle nests), the Facility may be eligible for a General Permit for Wind Energy Incidental Take, depending on the Facility's location relative to the USFWS general permit eligibility map (USFWS 2024b). A General Permit allows projects to obtain authorization more efficiently than a Specific Permit.

Although eagles tend to have long-lasting nest sites, other raptors may vary their nest locations more frequently. Year to year raptor nest location variability is driven by several factors including food supply, nest-site availability, and weather conditions. Conducting grading and removal of vegetated areas outside of the nesting season, which typically runs from March through August, could reduce the potential for disturbance to nesting raptors. If the construction schedule does not allow for vegetation removal outside of the breeding season, additional raptor nest surveys of the impacted areas could be conducted prior to the start of construction activities to identify active nests. If active raptor nests are found during the surveys, spatial buffer zones could be implemented to minimize potential disturbance to the breeding raptors and their young. The size of the buffer zones and the types of activities restricted within them could be determined through coordination with relevant wildlife agencies, such as the USFWS and ODFW.

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Table

Table 1. Speedway Energy Facility 2025 Raptor Nest Survey Results

Nest ID	Species	Initial Survey Nest Status	Second Survey Nest Status	Nest Size	Initial Survey Nest Condition	Second Survey Nest Condition	Nest Substrate	Pertinent Survey Notes
1 ^{1,2}	Golden eagle	No Longer Present	No Longer Present	Large	Not Applicable	Not Applicable	Cliff	
301	Golden eagle	Alternate	Alternate	Large	Good	Good	Cliff	
302	Golden eagle	In-use	In-use	Large	Excellent	Excellent	Cliff	Three-week old eaglet observed in nest during the second survey.
311	Common Raven	Inactive	In-use	Small	Excellent	Excellent	Cliff	
319	Common Raven	Inactive	In-use	Small	Good	Excellent	Cliff	
325	Common Raven	Inactive	In-use	Small	Good	Excellent	Cliff	
327	Common Raven	Inactive	In-use	Small	Fair	Excellent	Cliff	
400	Common Raven	Unknown	In-use	Small	Unknown	Excellent	Cliff	
404	Common Raven	Unknown	In-use	Small	Unknown	Excellent	Broadleaf tree	
406	Common Raven	Unknown	In-use	Small	Unknown	Excellent	Snag	
409	Common Raven	Unknown	In-use	Small	Unknown	Excellent	Conifer tree	
202 ¹	Great horned owl	In-use	Inactive	Small	Excellent	Good	Broadleaf tree	Nest was empty during the second survey; based on their age at the time of the initial survey, the young likely fledged.
203 ¹	Great horned owl	In-use	Inactive	Small	Excellent	Good	Cliff	Nest was empty during the second survey; based on their age at the time of the initial survey, the young likely fledged.
306	Great horned owl	In-use	Inactive	Small	Excellent	Poor	Cliff	
324	Great horned owl	In-use	Inactive	Small	Excellent	Good	Cliff	Nest was empty during the second survey; based on their age at the time of the initial survey, the young likely fledged.
336	Great horned owl	In-use	In-use	Small	Excellent	Excellent	Broadleaf tree	
339	Great horned owl	In-use	In-use	Small	Excellent	Excellent	Broadleaf tree	
403	Prairie falcon	Unknown	In-use	Small	Unknown	Excellent	Cliff	
102 ¹	Red-tailed hawk	In-use	In-use	Small	Excellent	Excellent	Broadleaf tree	An unattended egg present in nest during the initial survey, but incubating adult observed on nest during the second survey.
104 ¹	Red-tailed hawk	Inactive	In-use	Small	Good	Excellent	Snag	
105 ¹	Red-tailed hawk	In-use	In-use	Small	Excellent	Excellent	Broadleaf tree	
107 ¹	Red-tailed hawk	In-use	In-use	Small	Excellent	Excellent	Snag	
305	Red-tailed hawk	In-use	In-use	Small	Excellent	Excellent	Cliff	
307	Red-tailed hawk	Inactive	In-use	Small	Fair	Excellent	Cliff	
312	Red-tailed hawk	In-use	In-use	Small	Excellent	Excellent	Broadleaf tree	
316	Red-tailed hawk	In-use	Inactive	Small	Excellent	Good	Broadleaf tree	
317	Red-tailed hawk	Inactive	In-use	Small	Good	Good	Broadleaf tree	It appears that red-tailed hawks began using the nest between the first and second survey, but signs of a depredated adult were observed at the nest at the time of the second survey.
323	Red-tailed hawk	In-use	In-use	Small	Excellent	Excellent	Cliff	
331	Red-tailed hawk	In-use	In-use	Small	Excellent	Excellent	Conifer tree	

Nest ID	Species	Initial Survey Nest Status	Second Survey Nest Status	Nest Size	Initial Survey Nest Condition	Second Survey Nest Condition	Nest Substrate	Pertinent Survey Notes
333	Red-tailed hawk	Inactive	In-use	Small	Good	Excellent	Broadleaf tree	
338	Red-tailed hawk	Inactive	In-use	Small	Good	Excellent	Conifer tree	
340	Red-tailed hawk	Inactive	In-use	Small	Fair	Excellent	Broadleaf tree	
405	Red-tailed hawk	Unknown	In-use	Small	Unknown	Excellent	Snag	
412	Red-tailed hawk	Unknown	In-use	Small	Unknown	Excellent	Broadleaf tree	
414	Red-tailed hawk	Unknown	In-use	Small	Unknown	Excellent	Snag	
329	Swainson's hawk	Inactive	In-use	Small	Good	Excellent	Snag	
415	Swainson's hawk	Unknown	In-use	Small	Unknown	Excellent	Conifer tree	
416	Swainson's hawk	Unknown	In-use	Small	Unknown	Excellent	Snag	
419	Swainson's hawk	Unknown	In-use	Small	Unknown	Excellent	Conifer tree	
422	Swainson's hawk	Unknown	In-use	Small	Unknown	Excellent	Conifer tree	
314	Unknown	Inactive	In-use	Small	Fair	Excellent	Broadleaf tree	During the second survey, there were unattended eggs present in the nest, but no nearby adults observed, and the surveyors were unable to ascertain species using the nest.
320	Unknown	Inactive	In-use	Small	Good	Excellent	Broadleaf tree	During the second survey, there were unattended eggs present in the nest, but no nearby adults observed, and the surveyors were unable to ascertain species using the nest.
101 ¹	Unknown	Inactive	Inactive	Small	Good	Good	Snag	
106 ¹	Unknown	Inactive	Inactive	Small	Poor	Poor	Conifer tree	
300	Unknown	Inactive	Inactive	Small	Poor	Poor	Cliff	
303	Unknown	Inactive	Inactive	Small	Fair	Fair	Cliff	
304	Unknown	Inactive	Inactive	Small	Poor	Poor	Rock outcrop	
308	Unknown	Inactive	Inactive	Small	Fair	Fair	Cliff	
309	Unknown	Inactive	Inactive	Small	Remnant	Good	Broadleaf tree	
310	Unknown	Inactive	Inactive	Small	Fair	Fair	Cliff	
315	Unknown	Inactive	Inactive	Small	Poor	Fair	Broadleaf tree	
318	Unknown	Inactive	Inactive	Small	Good	Good	Cliff	A broken egg was observed on the side of nest, outside of the nest bowl, during the initial survey. Unable to determine whether the egg is from this year, so nest was classified as inactive.
321	Unknown	Inactive	Inactive	Small	Fair	Fair	Broadleaf tree	
322	Unknown	Inactive	Inactive	Small	Good	Good	Broadleaf tree	
326	Unknown	Inactive	Inactive	Small	Poor	Poor	Cliff	
328	Unknown	Inactive	Inactive	Small	Poor	Fair	Broadleaf tree	Nest was slightly improved between the first and second survey; potential Swainson's hawk nest.
330	Unknown	Inactive	Inactive	Small	Good	Fair	Cliff	
332	Unknown	Inactive	Inactive	Small	Fair	Fair	Snag	
334	Unknown	Inactive	Inactive	Small	Fair	Fair	Broadleaf tree	

Nest ID	Species	Initial Survey Nest Status	Second Survey Nest Status	Nest Size	Initial Survey Nest Condition	Second Survey Nest Condition	Nest Substrate	Pertinent Survey Notes
335	Unknown	Inactive	Inactive	Small	Fair	Fair	Broadleaf tree	
337	Unknown	Inactive	Inactive	Small	Excellent	Fair	Broadleaf tree	Nest was in excellent condition with recently added nesting material during the initial survey, but the nest deteriorated between the first and second survey.
401	Unknown	Unknown	Inactive	Small	Unknown	Fair	Cliff	
402	Unknown	Unknown	Inactive	Small	Unknown	Fair	Cliff	
407	Unknown	Unknown	Inactive	Small	Unknown	Fair	Cliff	
408	Unknown	Unknown	Inactive	Small	Unknown	Good	Cliff	
410	Unknown	Unknown	Inactive	Small	Unknown	Good	Snag	The nest was likely constructed by Swainson's hawks.
411	Unknown	Unknown	Inactive	Small	Unknown	Fair	Conifer tree	The nest was likely constructed by Swainson's hawks.
413	Unknown	Unknown	Inactive	Small	Unknown	Good	Conifer tree	
417	Unknown	Unknown	Inactive	Small	Unknown	Good	Snag	
418	Unknown	Unknown	Inactive	Small	Unknown	Good	Snag	A Swainson's hawk was observed nearby during the second survey.
420	Unknown	Unknown	Inactive	Small	Unknown	Poor	Conifer tree	
421	Unknown	Unknown	Inactive	Small	Unknown	Fair	Conifer tree	
423	Unknown	Unknown	Inactive	Small	Unknown	Excellent	Broadleaf tree	Fresh greenery observed in the nest during the second survey. The nest was likely constructed by Swainson's hawks.
313 ²	Unknown	Inactive	No Longer Present	Small	Good	Not Applicable	Broadleaf tree	
100 ^{1,2}	Unknown	No Longer Present	No Longer Present	Small	Not Applicable	Not Applicable	Broadleaf tree	
103 ^{1,2}	Unknown	No Longer Present	No Longer Present	Small	Not Applicable	Not Applicable	Snag	
201 ^{1,2}	Unknown	No Longer Present	No Longer Present	Small	Not Applicable	Not Applicable	Broadleaf tree	
204 ^{1,2}	Unknown	No Longer Present	No Longer Present	Small	Not Applicable	Not Applicable	Cliff	
1. Previously known nest record reported by Leal 2020, Tetra Tech 2023, or ORBIC 2025.								
2. Nest was confirmed to no longer be present and, therefore, is not included in the totals provided in the text of the report nor depicted in the report figure.								

Figure

(Figure 1 is confidential and provided under a separate cover)

2026 Raptor Nest Survey Report

Speedway Energy Facility

Prepared for:



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May 2026

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Figure 1. Speedway Energy Project 2026 Raptor Nest Survey Results – Confidential and provided under separate cover

1.0 Introduction

BGTF Speedway Project LLC (BGTF)¹ proposes construction and operation of the Speedway Energy Facility (Facility), a renewable energy facility incorporating wind, solar, and battery energy storage, located on privately owned land located in unincorporated Sherman County, Oregon (Figure 1). The site boundary encompasses 23,936 acres of private land. As part of its environmental due diligence, BGTF contracted Tetra Tech to conduct an additional year of raptor nest surveys for the Facility during the 2026 breeding season in support of an Application for Site Certificate through the Oregon Department of Energy's Energy Facility Siting Council. The Survey Area encompassed a 2-mile buffer around the site boundary (Figure 1). The purpose of the surveys was to inventory raptor nests within the Survey Area to support Project permitting and inform potential avoidance and minimization measures.

2.0 Regulatory Context

The surveys were designed in accordance with the voluntary U.S. Fish and Wildlife Service (USFWS) Land-based Wind Energy Guidelines (WEG; USFWS 2012), Stage 2 of the Eagle Conservation Plan Guidance (ECPG; USFWS 2013), the Updated Eagle Nest Survey Protocol (USFWS 2020), the 2024 Eagle Rule (USFWS 2024a), as well as Energy Facility Siting Council standards set forth in Oregon Administrative Rules 345-022-0060.

The ECPG and 2024 Eagle Rule recommend that at least 2 years of pre-construction raptor nest surveys be conducted at wind energy project sites. Raptor nest surveys were previously conducted at the Facility in 2023 and 2025 (Tetra Tech 2023, Tetra Tech 2025). Because of changes in the site boundary and shifting the Facility from exclusively solar to a hybrid wind/solar system, survey areas varied slightly among survey years.

Raptors and other migratory birds are protected under the Migratory Bird Treaty Act (MBTA). Bald and golden eagles are also protected under the Bald and Golden Eagle Protection Act (BGEPA). These acts prohibit anyone without a permit from the USFWS from “taking” any part of these birds, their eggs, or their nests. This includes removing an active nest or disturbing an adult bird so that it abandons the nest, causing the eggs or young to die.

3.0 Review of Existing Data

Tetra Tech reviewed raptor nest data from several sources including the Oregon Biodiversity Information Center (ORBIC; 2026), the Oregon Eagle Foundation (OEF; Leal 2020), and the results

¹ References to BGTF generally include or also refer to the parent company and predecessor in interest to the Project, Brookfield Renewable N.A., except where specifically noted.

from the 2025 surveys at the Facility (Tetra Tech 2025). The data review identified 66 previously known nests within the Survey Area (Table 1), which were checked during the 2026 surveys.

There was one historical golden eagle nest record from the OEF/ORBIC datasets that was confirmed to be no longer present during the 2025 surveys (Tetra Tech 2025). Because golden eagles often have long-enduring nesting territories and usually build several nests within their territory (Palmer 1988), the surveyors searched in the vicinity of this eagle nest again in 2026 and confirmed that there was no nest present at this location. Additionally, after the 2025 surveys were completed, the site boundary was modified to avoid two golden eagle nests (one in-use, one alternate) assumed to be from the same territory (Tetra Tech 2025), which are located outside of the 2026 Survey Area.

4.0 Methods

4.1 Field Surveys

Two rounds of aerial surveys were performed within the Survey Area to facilitate a complete inventory of nest locations and accurate nest occupancy determinations. The initial survey was conducted on February 18-19, 2026, during the early nesting period when most breeding pairs of raptors in the region exhibit courtship, nest-building, or incubation behaviors. The second survey was conducted on April 16-17, 2026, when most raptors in the region are engaged in mid-season reproductive activities (e.g., incubation, brooding). The surveys were conducted from a Bell 206B3 Jet Ranger helicopter (JL Aviation based in Boring, Oregon). The crew consisted of a pilot and two Tetra Tech biologists to maximize safety and minimize the chance of missing nests.

While searching for nests, the helicopter flew north-to-south-oriented transects spaced no more than 1 mile apart over the entire Survey Area. The helicopter deviated from the transects for closer inspection of areas of quality nesting habitat and to check previously documented nests, as needed. The transects were shifted by 0.5 miles during the second round to provide more complete coverage of the Survey Area by increasing the overall number of transects and reducing the spacing between the transects. The helicopter flew at a speed of 30 to 40 knots and an approximate altitude of 200 feet above ground. The helicopter's speed and altitude were reduced as needed for the inspection of nests and other areas of interest. Private residences and livestock were avoided or flown over at higher altitudes to keep disturbance to a minimum.

During both survey rounds, the surveyors checked the status of known raptor nests and searched for new, undiscovered raptor nests. The surveyors documented all raptor nests, common raven nests, concentrations of eagle prey resources (e.g., herds of big game, carrion, etc.), and incidental observations of eagles. Although not raptors, common raven nests were documented because they could be used by nesting raptors during subsequent breeding seasons.

Incidental observations of ungulates (i.e., big game) were recorded as carcasses of these species can provide foraging opportunities for eagles.

4.2 Data Collection

Tablet computers with ArcGIS mapping software and electronic data forms were used during the surveys to aid in navigation and record data. For each nest, the following data were collected:

- **Nest Identification Number:** Each nest site was assigned a unique identification number, which, when combined with its latitude and longitude, allows for the precise identification and location of that specific nest site.
- **Species:** If identified, the species was recorded. If the species using the nest could not be determined, it was recorded as unknown.
- **Adult Present:** Proximity of the adult to the nest (e.g., on nest, nearby, or unknown).
- **Eggs or Young:** Number of eggs or young observed.
- **Nest Size:** Classified as large or small. Small nests were those estimated by the biologists as having a diameter of less than 24 inches, comprised of smaller sticks, and with other characteristics typical of nests used by smaller raptors and not by eagles. Large nests were those estimated by the biologists as having a diameter of 24 inches or greater, comprised of larger sticks, and with other characteristics typical of nests used by eagles and other large raptors.
- **Nest Substrate:** Structure in which the nest was located (e.g., broadleaf tree, cliff, artificial nest structure, etc.).
- **Nest Status:** To assess nest status, the following terms were adapted from the 2024 Eagle Rule (USFWS 2024a) and Postupalsky (1974):
 - Inactive: Defined by the absence of any adult, egg, or dependent young at the nest, or signs of building or adding to the nest in preparation for egg-laying. This term is specific to non-eagle nests.
 - In-use: The presence of eggs, dependent young, or adult on the nest, or signs of building or adding to the nest in preparation for egg-laying. This term applies to eagle and non-eagle nests.
 - Alternate: One of potentially several nests within an eagle territory that is not an in-use nest at the time of surveys. When there is no in-use nest, all nests in the territory are alternate nests. This term is specific to eagle nests.
 - Unknown: A nest not detected during the first round of surveys which may have gone undetected or been built subsequent to the survey, or a nest that is present but for which surveyors are unable to determine status (e.g., vegetation around the nest site obscured the view of nest, etc.). This term applies to eagle and non-eagle nests.
 - No Longer Present: A nest that was located during a previous survey but has subsequently been positively ascertained to be destroyed and no evidence of the nest remains. This term applies to eagle and non-eagle nests.

- **Not Found**: A previously known nest that could not be located (e.g., access limitations), but that may still exist (not the same as “No Longer Present” above). This term applies to eagle and non-eagle nests.
- **Not Surveyed**: A known nest that occurred outside of the given survey area or that could not be surveyed due to other reasons (e.g., inaccessible to helicopter, the presence of a residence, nearby cattle, etc.). This term applies to eagle and non-eagle nests.
- **Failed**: A nest for which evidence indicates nest initiation (egg-laying), but the nest failed to produce any chicks to fledging age. This term applies to eagle and non-eagle nests.
- **Nest Condition**: To assess nest condition, the following criteria were used (Postupalsky 1974):
 - **Excellent**: Defined cup or nest bowl with a well-maintained rim; adult or young present.
 - **Good**: Nest bowl intact and rim defined; minor repair needed for nest to be used; margins of nest in loose configuration, minor slumping occurring.
 - **Fair**: Nest bowl intact and nest not dilapidated but needs significant repair in order to be used; material is slumping or sliding.
 - **Poor**: Loose structure of nest bowl still present; nest walls and side falling out; nest is in need of major repair to be used.
 - **Remnant**: Nest bowl not defined; scant material remaining and not usable unless fully rebuilt.
 - **Unknown**: The nest cannot be found, was not surveyed, or the nest is present, but because of its location, a determination cannot be made.
 - **Not Applicable**: Nest no longer present.

5.0 Results and Discussion

At the completion of the second survey, 87 nests (52 previously known nests and 35 new nests) were observed within the Survey Area, including one in-use bald eagle nest, 19 in-use red-tailed hawk nests, four in-use great horned owl nests, one in-use ferruginous hawk nest, one in-use Swainson’s hawk nest, one in-use Cooper’s hawk nest, one in-use prairie falcon nest, 15 in-use common raven nests, and 44 small inactive nests with unknown species determinations (Table 1, Figure 1). Additionally, one previously known red-tailed hawk nest (Nest 414) was not surveyed during either survey because it is located too close to an occupied house (Table 1, Figure 1). The house was not occupied last year when the nest was first recorded. Thirteen of the 66 previously known nests were confirmed to be no longer present during the 2026 surveys (Table 1). Nests that

were no longer present are not included in the totals above, nor are they depicted in the report figure.

Nests were distributed throughout the Survey Area, but most were found in trees along drainages or on cliffs and rocky outcrops associated with canyons and ravines outside of the site boundary. Of the 87 nests known to be present within the Survey Area, 60 were in trees (38 in broadleaf trees, 17 in conifer trees, and five in snags), two were in shrubs, 22 were on cliffs, one was on a rock outcrop, and two were on utility structures (Table 1).

The bald eagle nest (Nest 508) was in a large deciduous tree located next to a small body of water, in the southern portion of the site boundary. During the initial survey, the nest was in the early stages of construction with an adult bald eagle perched nearby. During the second survey, the nest was completely constructed and occupied by an incubating bald eagle. Aside from the bald eagle nest and ferruginous hawk nest (Nest 502), all other nests recorded during these surveys were small, and not characteristic of nests typically built by or likely to be used by eagles or ferruginous hawks (Table 1; WDFW 1996, Shaffer et al. 2019, Katzner et al. 2020, Ng et al. 2020).

No state or federally listed threatened or endangered species were documented during the surveys. The ferruginous hawk and Swainson's hawk are designated as state sensitive species by the Oregon Department of Fish and Wildlife (ODFW; ODFW 2021).

Incidental sightings observed during the surveys consisted of herds of elk, mule deer, and bighorn sheep (Figure 1). A single herd of elk with 50 individuals was observed in the southeastern portion of the Survey Area, outside the site boundary. Several herds of mule deer with 6-20 individuals were observed in the northern and western portion of the Survey Area, outside the site boundary. Two herds of bighorn sheep with 3-5 individuals were observed in the canyonlands to the west of the southern portion of the site boundary. ODFW-designated elk winter range overlaps the southwestern portion of the Survey Area, outside of the site boundary (ODFW 2013). ODFW-designated mule deer winter range overlaps the Survey Area, including the southwestern portion of the site boundary (ODFW 2013). Areas of occupied bighorn sheep range overlap the western portion of the Survey Area, outside of the site boundary (ODFW 2016).

Bald eagle Nest 508 is located in the southern portion of the site boundary, west of U.S. Highway 97. Under BGEPA, incidental take of an eagle means the species is harmed, harassed, killed, etc. as a foreseeable byproduct of an activity where the take is not the primary intent but may happen incidentally. Eagle Incidental Take Permits for wind energy are voluntary authorizations for the unintentional take of bald or golden eagles. They are divided into two main categories: general and specific. General permits allow projects to obtain authorization more efficiently than specific permits. To be eligible for a general permit, all wind turbines must be within the general permit zone (USFWS 2024b), and all turbine components (including blades) must be kept more than 660 feet from a bald eagle nest.

While large, long-lived raptors such as bald and golden eagles often reuse and expand the same nest for years, many other species maintain multiple nests within their territory, alternating between them or building new ones each year. Year-to-year raptor nest location variability is driven by

several factors including food supply, nest-site availability, and weather conditions. Conducting grading and removal of vegetated areas outside of the nesting season, which typically runs from March through August, could reduce the potential for disturbance to nesting raptors.

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Table

Table 1. Speedway Energy Facility 2026 Raptor Nest Survey Results

Nest ID	Species	Initial Survey Nest Status	Second Survey Nest Status	Nest Size	Initial Survey Nest Condition	Second Survey Nest Condition	Nest Substrate	Pertinent Survey Notes
508	Bald eagle	Alternate	In-use	Large	Fair	Excellent	Broadleaf tree	During the initial survey, the nest was in early stages of construction with an adult bald eagle perched nearby. During the second survey, the nest was completely constructed and occupied by an incubating bald eagle.
319 ¹	Common raven	Inactive	In-use	Small	Good	Excellent	Cliff	
325 ¹	Common raven	Inactive	In-use	Small	Good	Excellent	Cliff	
327 ¹	Common raven	Inactive	In-use	Small	Poor	Excellent	Cliff	Nest is located in a quarry.
404 ¹	Common raven	Inactive	In-use	Small	Fair	Excellent	Broadleaf tree	
406 ¹	Common raven	Inactive	In-use	Small	Good	Excellent	Broadleaf tree	
409 ¹	Common raven	In-use	Inactive	Small	Good	Good	Conifer tree	
413 ¹	Common raven	Inactive	In-use	Small	Good	Excellent	Conifer tree	
503	Common raven	Inactive	In-use	Small	Fair	Excellent	Conifer tree	
510	Common raven	Inactive	In-use	Small	Good	Excellent	Broadleaf tree	
600	Common raven	Unknown	In-use	Small	Unknown	Excellent	Conifer tree	
603	Common raven	Unknown	In-use	Small	Unknown	Excellent	Utility structure	
607	Common raven	Unknown	In-use	Small	Unknown	Excellent	Snag	
609	Common raven	Unknown	In-use	Small	Unknown	Excellent	Broadleaf tree	
610	Common raven	Unknown	In-use	Small	Unknown	Excellent	Cliff	
612	Common raven	Unknown	In-use	Small	Unknown	Excellent	Broadleaf tree	
514	Cooper's hawk	Inactive	In-use	Small	Good	Excellent	Broadleaf tree	
502	Ferruginous hawk	Inactive	In-use	Large	Good	Excellent	Conifer tree	
317 ¹	Great horned owl	Inactive	In-use	Small	Good	Excellent	Broadleaf tree	
320 ¹	Great horned owl	Inactive	In-use	Small	Good	Excellent	Broadleaf tree	
336 ¹	Great horned owl	Inactive	In-use	Small	Good	Excellent	Broadleaf tree	
606	Great horned owl	Unknown	In-use	Small	Unknown	Excellent	Snag	
403 ¹	Prairie falcon	Inactive	In-use	Small	Good	Excellent	Cliff	Scrape nest.
102 ¹	Red-tailed hawk	Inactive	In-use	Small	Good	Excellent	Broadleaf tree	
104 ¹	Red-tailed hawk	Inactive	In-use	Small	Fair	Excellent	Broadleaf tree	
303 ¹	Red-tailed hawk	Inactive	In-use	Small	Good	Excellent	Cliff	
306 ¹	Red-tailed hawk	Inactive	In-use	Small	Good	Excellent	Cliff	
312 ¹	Red-tailed hawk	Inactive	In-use	Small	Good	Excellent	Broadleaf tree	
313 ¹	Red-tailed hawk	Inactive	In-use	Small	Remnant	Excellent	Cliff	Dead adult red-tailed hawk with an unhatched egg observed in the nest during the second survey. The nest failed but was classified as in-use because red-tailed hawks began using the nest between the first and second survey.
314 ¹	Red-tailed hawk	Inactive	In-use	Small	Good	Excellent	Broadleaf tree	
316 ¹	Red-tailed hawk	Inactive	In-use	Small	Fair	Excellent	Broadleaf tree	

Nest ID	Species	Initial Survey Nest Status	Second Survey Nest Status	Nest Size	Initial Survey Nest Condition	Second Survey Nest Condition	Nest Substrate	Pertinent Survey Notes
318 ¹	Red-tailed hawk	Inactive	In-use	Small	Good	Excellent	Cliff	Fresh greenery observed on nest during the initial survey.
331 ¹	Red-tailed hawk	Inactive	In-use	Small	Fair	Excellent	Conifer tree	
333 ¹	Red-tailed hawk	Inactive	In-use	Small	Good	Excellent	Broadleaf tree	
340 ¹	Red-tailed hawk	In-use	In-use	Small	Excellent	Excellent	Broadleaf tree	
405 ¹	Red-tailed hawk	Inactive	In-use	Small	Good	Excellent	Broadleaf tree	
501	Red-tailed hawk	In-use	In-use	Small	Excellent	Excellent	Utility structure	
601	Red-tailed hawk	Unknown	In-use	Small	Unknown	Excellent	Snag	
602	Red-tailed hawk	Unknown	In-use	Small	Unknown	Excellent	Conifer tree	
604	Red-tailed hawk	Unknown	In-use	Small	Unknown	Excellent	Broadleaf tree	
608	Red-tailed hawk	Unknown	In-use	Small	Unknown	Excellent	Conifer tree	
614	Red-tailed hawk	Unknown	In-use	Small	Unknown	Excellent	Conifer tree	
423 ¹	Swainson's hawk	Inactive	In-use	Small	Good	Excellent	Broadleaf tree	
32 ¹	Unknown	Inactive	Inactive	Small	Fair	Good	Broadleaf tree	
101 ¹	Unknown	Inactive	Inactive	Small	Good	Fair	Broadleaf tree	
106 ¹	Unknown	Inactive	Inactive	Small	Fair	Fair	Conifer tree	
202 ¹	Unknown	Inactive	Inactive	Small	Good	Poor	Broadleaf tree	
203 ¹	Unknown	Inactive	Inactive	Small	Poor	Poor	Cliff	
301 ¹	Unknown	Inactive	Inactive	Small	Fair	Fair	Cliff	
305 ¹	Unknown	Inactive	Inactive	Small	Excellent	Excellent	Cliff	
308 ¹	Unknown	Inactive	Inactive	Small	Good	Good	Cliff	
321 ¹	Unknown	Inactive	Inactive	Small	Good	Good	Broadleaf tree	
322 ¹	Unknown	Inactive	Inactive	Small	Fair	Fair	Broadleaf tree	
324 ¹	Unknown	Inactive	Inactive	Small	Good	Good	Cliff	
326 ¹	Unknown	Inactive	Inactive	Small	Poor	Poor	Cliff	
328 ¹	Unknown	Inactive	Inactive	Small	Poor	Good	Broadleaf tree	
332 ¹	Unknown	Inactive	Inactive	Small	Fair	Fair	Snag	
334 ¹	Unknown	Inactive	Inactive	Small	Good	Good	Broadleaf tree	
335 ¹	Unknown	Inactive	Inactive	Small	Good	Good	Broadleaf tree	
339 ¹	Unknown	Inactive	Inactive	Small	Fair	Fair	Broadleaf tree	
401 ¹	Unknown	Inactive	Inactive	Small	Poor	Poor	Cliff	
402 ¹	Unknown	Inactive	Inactive	Small	Remnant	Remnant	Rock outcrop	
407 ¹	Unknown	Inactive	Inactive	Small	Fair	Remnant	Cliff	
408 ¹	Unknown	Inactive	Inactive	Small	Fair	Fair	Cliff	
411 ¹	Unknown	Inactive	Inactive	Small	Good	Good	Conifer tree	Nest appears to have been constructed by Swainson's hawks.
412 ¹	Unknown	Inactive	Inactive	Small	Excellent	Excellent	Broadleaf tree	

Nest ID	Species	Initial Survey Nest Status	Second Survey Nest Status	Nest Size	Initial Survey Nest Condition	Second Survey Nest Condition	Nest Substrate	Pertinent Survey Notes
415 ¹	Unknown	Inactive	Inactive	Small	Good	Good	Conifer tree	Two Swainson's hawks observed nearby during the second survey.
420 ¹	Unknown	Unknown	Inactive	Small	Unknown	Poor	Conifer tree	
421 ¹	Unknown	Inactive	Inactive	Small	Good	Good	Conifer tree	
422 ¹	Unknown	Inactive	Inactive	Small	Fair	Fair	Conifer tree	
500	Unknown	Inactive	Inactive	Small	Fair	Fair	Broadleaf tree	
504	Unknown	Inactive	Inactive	Small	Poor	Poor	Broadleaf tree	
505	Unknown	Inactive	Inactive	Small	Good	Good	Broadleaf tree	
506	Unknown	Inactive	Inactive	Small	Fair	Good	Conifer tree	
507	Unknown	Inactive	Inactive	Small	Fair	Good	Conifer tree	
509	Unknown	Inactive	Inactive	Small	Fair	Fair	Cliff	
511	Unknown	Inactive	Inactive	Small	Good	Good	Broadleaf tree	
512	Unknown	Inactive	Inactive	Small	Fair	Good	Cliff	
513	Unknown	Inactive	Inactive	Small	Fair	Fair	Cliff	
515	Unknown	Inactive	Inactive	Small	Good	Good	Broadleaf tree	
516	Unknown	Inactive	Inactive	Small	Fair	Fair	Shrub	
517	Unknown	Inactive	Inactive	Small	Good	Fair	Broadleaf tree	
518	Unknown	Inactive	Inactive	Small	Fair	Fair	Broadleaf tree	Adult red-tailed hawk observed nearby during the second survey.
519	Unknown	Inactive	Unknown	Small	Fair	Good	Broadleaf tree	
605	Unknown	Unknown	Inactive	Small	Unknown	Excellent	Snag	
611	Unknown	Unknown	Inactive	Small	Unknown	Fair	Shrub	
613	Unknown	Unknown	Inactive	Small	Unknown	Fair	Cliff	
414 ¹	Unknown	Not Surveyed	Not Surveyed	Small	Unknown	Unknown	Snag	Nest was not surveyed during either survey because it is located too close to an occupied house. The house was not occupied last year, when the nest was first recorded.
105 ^{1,2}	Not Applicable	No Longer Present	No Longer Present	Not Applicable	Not Applicable	Not Applicable	Broadleaf tree	
107 ^{1,2}	Not Applicable	No Longer Present	No Longer Present	Not Applicable	Not Applicable	Not Applicable	Broadleaf tree	Nest tree has either fallen over or been knocked over by landowner.
330 ^{1,2}	Not Applicable	No Longer Present	No Longer Present	Not Applicable	Not Applicable	Not Applicable	Cliff	
337 ^{1,2}	Not Applicable	No Longer Present	No Longer Present	Not Applicable	Not Applicable	Not Applicable	Broadleaf tree	
338 ^{1,2}	Not Applicable	No Longer Present	No Longer Present	Not Applicable	Not Applicable	Not Applicable	Conifer tree	
417 ^{1,2}	Not Applicable	No Longer Present	No Longer Present	Not Applicable	Not Applicable	Not Applicable	Broadleaf tree	
418 ^{1,2}	Not Applicable	No Longer Present	No Longer Present	Not Applicable	Not Applicable	Not Applicable	Broadleaf tree	
304 ^{1,2}	Not Applicable	Inactive	No Longer Present	Small	Remnant	Not Applicable	Cliff	
313 ^{1,2}	Not Applicable	No Longer Present	No Longer Present	Small	Not Applicable	Not Applicable	Broadleaf tree	
315 ^{1,2}	Not Applicable	Inactive	No Longer Present	Small	Good	Not Applicable	Broadleaf tree	Nest tree fell down after the initial survey.
410 ^{1,2}	Not Applicable	Inactive	No Longer Present	Small	Fair	Not Applicable	Broadleaf tree	
416 ^{1,2}	Not Applicable	Inactive	No Longer Present	Small	Poor	Not Applicable	Snag	Nest appeared to have been constructed by Swainson's hawks before falling apart between survey rounds.

Nest ID	Species	Initial Survey Nest Status	Second Survey Nest Status	Nest Size	Initial Survey Nest Condition	Second Survey Nest Condition	Nest Substrate	Pertinent Survey Notes
419 ^{1,2}	Not Applicable	Inactive	No Longer Present	Small	Poor	Not Applicable	Conifer tree	
1. Previously known nest record reported by Tetra Tech 2025. 2. Nest was confirmed to no longer be present and, therefore, is not included in the totals provided in the text of the report nor depicted in the report figure.								

Figure

(Figure 1 is confidential and provided under separate cover)

Attachment G-2.

Draft Habitat Mitigation Plan

Draft Habitat Mitigation Plan

Speedway Energy Facility

Prepared for



BGTF Speedway Project, LLC

Prepared by



July 2026

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1.0 Introduction

BGTF Speedway Project LLC (Applicant) proposes construction and operation of the Speedway Energy Facility (Facility), a renewable energy facility incorporating wind, solar, and battery energy storage, located on privately owned land in unincorporated Sherman County, Oregon. The Facility is located entirely within the Columbia Plateau Ecoregion, approximately 5 miles east of the Deschutes River and approximately 5.5 miles west of the John Day River.

The Facility's site boundary encompasses 23,936 acres of privately owned land and is bisected by U.S. Route 97 (US-97). The area within the site boundary will be developed with wind turbines and separate solar arrays, while avoiding sensitive resource areas and reserving other areas for continued agricultural practices. The northernmost portion of the site boundary is 3.3 miles southeast of the City of Moro, and the middle portion of the site boundary is 0.6 miles from the City of Grass Valley (Figure 1).

This draft Habitat Mitigation Plan (HMP) describes how the Applicant will mitigate for the unavoidable wildlife habitat impacts of the Facility. Specifically, this HMP outlines how the Applicant will construct and operate the Facility consistent with the Oregon Department of Fish and Wildlife (ODFW) Habitat Mitigation Policy in Oregon Administrative Rules (OAR) 635-415-0025 (mitigation policy). This HMP addresses mitigation for both the permanent impacts of Facility components and the temporary impacts associated with the Facility construction. As presented in Section 5.0, the Applicant proposes three mitigation options, which may be utilized either individually or in combination to meet the mitigation needs of the Facility. These mitigation needs will be finalized prior to Facility construction.

2.0 Facility Features Impacting Mitigation

In determining the Facility's total mitigation needs, several factors are considered, including habitat categories outlined in ODFW's mitigation policy and the Facility's overlap with ODFW's Mule Deer Winter Range and Priority Wildlife Connectivity Areas (PWCAs). The following sections describe these considerations.

2.1 ODFW Habitat Categories

This HMP addresses fish and wildlife habitat impacts consistent with the administrative rules adopted by the State Fish and Wildlife Commission for the purposes of implementing Oregon Revised Statute (ORS) 496.012 (which includes OAR 635-415-0025), and meets the requirements of OAR 345-022-0060, as described in Exhibit G – Fish and Wildlife Habitat of the Facility Application for Site Certificate.

ODFW implements its Fish and Wildlife Habitat Mitigation Policy when reviewing a development action and the action's potential impacts on fish and wildlife habitat. The mitigation policy

establishes consistent mitigation goals and standards for ODFW to follow when making recommendations to the regulatory authority overseeing the development action. When issuing a site certificate for a development action under its jurisdiction, the Oregon Energy Facility Siting Council (EFSC) must adhere to the EFSC Fish and Wildlife Habitat standard (OAR 345-022-0060), which requires that the design, construction, and operation of a facility, taking into account mitigation, are consistent with the goals and standards of the ODFW mitigation policy.

The mitigation policy sets forth the approach to categorizing habitat to be affected by the proposed development action into one of six habitat categories. The six habitat categories and their corresponding goals and standards are summarized in Table 1.

Table 1. ODFW Habitat Mitigation Policy Categories and Strategies

ODFW Habitat Category	Habitat Definition ¹	Mitigation Goal	Mitigation Strategy
Category 1	Irreplaceable, essential and limited habitat	No loss of habitat quantity or quality.	Avoidance
Category 2	Essential and limited habitat	No net loss of habitat quantity or quality <u>and</u> to provide a net benefit of habitat quantity or quality.	In-kind, in-proximity mitigation
Category 3	Essential habitat, or important and limited habitat	No net loss of habitat quantity or quality.	In-kind, in-proximity mitigation
Category 4	Important habitat	No net loss of either habitat quantity or quality	In-kind or out-of-kind, in-proximity or off-proximity mitigation
Category 5	Habitat having high potential to become either essential or important habitat	Net benefit in habitat quantity or quality	Actions that improve habitat conditions
Category 6	Habitat having low potential to become essential or important habitat	Minimize impacts	Minimize direct habitat loss and avoid off-site impacts
¹ "Irreplaceable" means that successful in-kind habitat mitigation to replace lost habitat quantity and/or quality is not feasible within an acceptable period of time or location, or involves an unacceptable level of risk or uncertainty, depending on the habitat under consideration and the fish and wildlife species or populations that are affected. "Acceptable", for the purpose of this definition, means in a reasonable time frame to benefit the affected fish and wildlife species. "Essential Habitat" means any habitat condition or set of habitat conditions which, if diminished in quality or quantity, would result in depletion of a fish or wildlife species. "Important Habitat" means any habitat recognized as a contributor to sustaining fish and wildlife populations on a physiographic province basis over time. "Limited" means an amount insufficient or barely sufficient to sustain fish and wildlife populations over time.			

Tetra Tech completed habitat field surveys to assign preliminary habitat categories across the entire Facility site boundary according to its appropriate ODFW Habitat Category (i.e., Category 1 through 6, as applicable). These field-designated habitat categories were based on habitat conditions, such as the quality of vegetation or disturbance levels. Wildlife overlays (see Section 2.2) were applied following field surveys and reflect the broader value of the landscape. See

Attachment G-1 of Exhibit G for field survey methodological details. Mitigation acreage was calculated based on the amount of overlap of permanent and temporary impacts with each of these habitat categories. This process is described in detail in Sections 3.0 and 4.0.

2.2 Wildlife Overlays

Two significant ODFW wildlife geographical information system (GIS) overlays impact the final habitat category used to calculate mitigation rates: the ODFW Mule Deer Winter Range and PWCAs. The ODFW Mule Deer Winter Range GIS overlay identifies mapped winter habitat for mule deer (ODFW 2013a, ODFW 2013b). Areas within the Facility overlapping with this overlay are considered Category 2 habitat, except where classified as Category 6 habitat (e.g., agricultural lands). In accordance with ODFW guidance, areas overlapping mapped winter range require in-kind, in-proximity mitigation. However, active agricultural lands and developed areas are excluded from this classification, regardless of their overlap with Mule Deer Winter Range (ODFW 2013b).

ODFW's PWCAs were developed through the Oregon Connectivity Assessment and Mapping Facility (OCAMP), a multi-year effort initiated in 2019 and completed in 2022 (OCAMP 2023). The final PWCA network was created using 40-acre hexagons. PWCAs identify areas with high value for wildlife movement and connectivity and are commonly treated as Category 2 habitat. However, because the mapping unit is relatively low-resolution, site-specific field review with ODFW may be useful in evaluating habitat quality and connectivity function on the ground.

3.0 Facility Impacts

Potential Facility impacts by habitat category and type are summarized in Table 2. Preliminary habitat categories presented in Table 2 are based on Tetra Tech's habitat categorization field survey and reflect vegetative characteristics only. Final habitat categories presented in Table 2 also account for overlap with the ODFW Mule Deer Winter Range: the southwestern portion of the Facility overlaps with the designated Mule Deer Winter Range (Figure 1), and the overlapping area includes preliminary habitat categories ranging from Category 2 to Category 6. However, Category 6 land is excluded for the overlay-based final categorization boost.

Table 2. Potential Impacts by Habitat Category, Type, and Subtype

Final Habitat Category ¹	Preliminary Habitat Category ²	Habitat Type	Habitat Subtype	Impacts (Acres)	
				Permanent	Temporary
2	2	Upland Grassland, Shrub-steppe and Shrubland	Eastside Grasslands	835.1	226.6
			Rabbitbrush/Snakeweed Shrubland	179.4	10.7
			Sagebrush Shrub-steppe	71.7	37.3
		Wetlands ³	Emergent Wetlands	-	0.3
	Preliminary Category 2 Total			1,086.2	274.8

Final Habitat Category ¹	Preliminary Habitat Category ²	Habitat Type	Habitat Subtype	Impacts (Acres)	
				Permanent	Temporary
2	3	Upland Grassland, Shrub-steppe and Shrubland	Eastside Grasslands	436.6	59.8
		Riparian Forest and Natural Shrubland Complexes	Eastside (Interior) Riparian- Emergent	-	0.4
	Preliminary Category 3 Total			436.6	60.2
2	4	Upland Grassland, Shrub-steppe and Shrubland	Eastside Grasslands	26.6	7.3
			Rabbitbrush/Snakeweed Shrubland	2.9	0.5
	Preliminary Category 4 Total			29.5	7.8
2	5	Upland Grassland, Shrub-steppe and Shrubland	Eastside Grasslands	0.2	0.2
		Open Water – Lakes, Rivers, Streams ³	Intermittent or Ephemeral Streams	<0.1	<0.1
	Preliminary Category 5 Total			0.2	0.2
Category 2 Final Total				1,552.5	343.0
3	3	Agriculture, Pasture, and Mixed Environs	Planted Grasslands	252.4	35.3
		Upland Grassland, Shrub-steppe and Shrubland	Eastside Grasslands	608.6	227.4
			Rabbitbrush/Snakeweed Shrubland	1.7	5.6
			Sagebrush Shrub-steppe	6.6	18.5
		Riparian Forest and Natural Shrubland Complexes	Eastside (Interior) Riparian- Emergent	-	1.9
			Eastside (Interior) Riparian- Forested or Natural Shrubland	-	<0.1
		Wetlands ³	Emergent Wetlands	-	0.5
Category 3 Total				869.3	289.3
4	4	Agriculture, Pasture, and Mixed Environs	Planted Grasslands	375.2	9.7
		Upland Grassland, Shrub-steppe and Shrubland	Eastside Grasslands	221.2	37.6
			Rabbitbrush/Snakeweed Shrubland	109.5	35.6
		Open Water – Lakes, Rivers, Streams ³	Intermittent or Ephemeral Streams	-	<0.1
			Seasonal Ponds	0.1	-

Final Habitat Category ¹	Preliminary Habitat Category ²	Habitat Type	Habitat Subtype	Impacts (Acres)	
				Permanent	Temporary
Category 4 Total				706.0	82.8
5	5	Agriculture, Pasture, and Mixed Environs	Planted Grasslands	<0.1	<0.1
		Upland Grassland, Shrub-steppe and Shrubland	Eastside Grasslands	257.1	37.9
		Open Water – Lakes, Rivers, Streams ³	Intermittent or Ephemeral Streams	0.3	0.2
		Riparian Forest and Natural Shrubland Complexes	Eastside (Interior) Riparian- Emergent	-	<0.1
		Wetlands ³	Emergent Wetlands	<0.1	<0.1
Category 5 Total				257.4	38.1
6	6	Agriculture, Pasture, and Mixed Environs	Wheat Fields and Other Row Crops	4,659.5	874.4
		Urban and Mixed Environs	Urban and Mixed Environs	3.8	15.9
	Category 6 Total			4,663.2	890.3
Grand Total				8,048.4	1,643.6
Note: Totals in this table may not be precise due to rounding. “-” means no acres while <0.1 means greater than zero but less than 0.05 acres.					
1. Habitat category following application of Mule Deer Winter Range.					
2. Habitat category based on vegetative characteristics.					
3. Impacts to wetlands and waters included in this table are greater than those identified in Sections 3.0 and 4.0 of Exhibit O1 (Wetlands and Other Waters) because this table includes: (1) impacts to non-jurisdictional features and (2) temporary impacts that will actually be avoided during ground disturbing activities (e.g., along the corridor for the aboveground 230-kilovolt collector lines where the temporary impact layer shows a crossing of a resource that will be avoided during construction by vehicles and equipment). See Sections 3.1 and 3.2 in Exhibit O1 for proposed impacts to jurisdictional features.					

In addition, several portions of the Facility overlap with PWCAs, even though the Facility infrastructure was largely placed to avoid them. A PWCA connector runs through the center of the Facility along Rosebush Creek (Figure 1). Infrastructure in this area largely avoids the waterway, aside from bored collection and overhead collector lines which pass over or under Rosebush Creek, respectively. Solar arrays adjacent to Rosebush Creek are located within Category 6 agricultural land along the west side of the connector. Similarly, PWCA regions and connectors cross into and through the northernmost portion of the Facility site boundary, but solar arrays are placed in the overlapping Category 6 agricultural land. PWCAs in the southern portion of the site were largely removed from consideration for the Facility for development and instead are being considered for habitat mitigation areas (including Speedway West, Central, and East, described in Section 5.2 below). Table 3 presents the preliminary habitat categories of habitat that overlap with the PWCA

overlay in areas outside of Mule Deer Winter Range (Figure 1). Approximately one-quarter of the Facility site boundary overlaps with either Mule Deer Winter Range or PWCAs.

Table 3. Potential Impacts to PWCAs by Habitat Category, Type, and Subtype

Preliminary Habitat Category ¹	Habitat Type	Habitat Subtype	Impacts (Acres)	
			Permanent	Temporary
2	Upland Grassland, Shrub-steppe and Shrubland	Eastside Grasslands	39.5	15.2
		Rabbitbrush/Snakeweed Shrubland	21.7	2.9
		Sagebrush Shrub-Steppe	35.5	13.7
	Wetlands	Emergent Wetlands	N/A	0.3
3	Agriculture, Pasture, and Mixed Environs	Planted Grasslands	13.9	1.1
	Riparian Forest and Natural Shrubland Complexes	Eastside (Interior) Riparian-Emergent	N/A	1.7
	Upland Grassland, Shrub-steppe and Shrubland	Eastside Grasslands	0.3	10.2
		Sagebrush Shrub-Steppe	2.5	4
	Wetlands	Emergent Wetlands	N/A	<0.05
4	Upland Grassland, Shrub-steppe and Shrubland	Eastside Grasslands	0.1	0.9
		Rabbitbrush/Snakeweed Shrubland	15.7	1.1
5	Open Water -- Lakes, Rivers, Streams	Intermittent or Ephemeral Streams	<0.05	<0.05
	Upland Grassland, Shrub-steppe and Shrubland	Eastside Grasslands	51.6	19.3
Total			180.7	70.2
1. Preliminary habitat categories were assigned during habitat categorization field surveys based on vegetative qualities and disturbance levels. The acres presented in this table overlap with PWCA regions and connectors within the Facility site boundary in areas that are outside of the Mule Deer Winter Range overlay. The habitat that overlaps with Mule Deer Winter Range is presented in Table 2.				

Habitat categorization was discussed with ODFW on a video call on June 15, 2026, and subsequently shared via email for further ODFW review. Best professional judgement was used for habitat mapping, along with knowledge of the area, to determine habitat categories; however, final habitat categories (Table 2) are subject to change pending further ODFW input. Additional collaboration and a potential site visit with ODFW will determine if the final habitat categories listed in this HMP require any alterations.

4.0 Methods for Calculating Required Mitigation

Before beginning construction of the Facility, the Applicant will provide the Oregon Department of Energy (ODOE) with a map showing the final design configuration and a table showing the

estimated acres of permanent and temporary impacts by habitat category. Total compensatory mitigation will be based on the estimated acres of permanent and temporary impacts that will occur as a result of the construction and operation of the Facility. Table 4 displays the compensatory mitigation ratios for permanent and temporary impacts and total mitigation acres needed for development based on the preliminary Facility layout. These mitigation ratios are the result of email correspondence with ODFW in which the Applicant's draft mitigation ratios were presented, then ODFW adjusted several of the mitigation ratios. The resulting ODFW-adjusted mitigation ratios increased the total mitigation acreage by about 400 acres. These mitigation ratios are listed in Table 4 and will be utilized for determining total Facility mitigation.

Permanent impacts are proposed to be mitigated for at the ratios described in Table 4. Temporary impacts to sagebrush shrub-steppe habitat will be mitigated for at a rate of 1:1 acre for Category 2 habitat and 0.5:1 for Category 3 habitat because this habitat subtype is likely to have a longer recovery timeline compared to other temporarily impacted habitats within the Facility site boundary (Table 4). No mitigation will be implemented for permanent or temporary impacts on Category 6 habitat subtypes (Table 4).

The total mitigation obligation will meet or exceed the mitigation acreage identified in the finalized version of Table 4. This total may be achieved through one or more of the mitigation options described in Section 5, provided the combined acreage meets the required mitigation goal. The Applicant will continue to collaborate with and seek input from ODFW to determine the final mitigation ratios and mitigation acreage needs prior to construction.

Table 4. Compensatory Mitigation Ratios and Acreage

Final Habitat Category ¹	Preliminary Habitat Category ²	Habitat Subtype	Permanent Impact	Mitigation Ratio for Permanent Impacts ³	Permanent Impact Mitigation Need (Acres)	Temporary Impact	Mitigation Ratio for Temporary Impacts	Temporary Impact Mitigation Need (Acres)	Total Mitigation (Acres) ⁴
2 (Mule Deer Winter Range or Field Delineated)	2	Eastside Grasslands	795.6	2:1	1,591.10	211.4	-	-	1,591.1
		Rabbitbrush/Snakeweed Shrubland	157.7	2:1	315.5	7.8	-	-	315.5
		Sagebrush Shrub-Steppe	36.2	2:1	72.5	23.6	1:1	23.6	96.0
	3	Eastside Grasslands	436.6	2:1	873.3	59.8	-	-	873.3
	4	Eastside Grasslands	26.6	2:1	53.1	7.3	-	-	53.1
		Rabbitbrush/Snakeweed Shrubland	2.9	2:1	5.8	0.5	-	-	5.8
	5	Eastside Grasslands	0.2	0.5:1	0.1	0.2	-	-	0.1
		Intermittent or Ephemeral Streams	0.05	0.5:1	<0.05	-	-	-	<0.05
PWCAs (outside of Mule Deer Winter Range)	2	Eastside Grasslands	39.5	2:1	79	15.2	-	-	79
		Rabbitbrush/Snakeweed Shrubland	21.7	2:1	43.3	2.9	-	-	43.3
		Sagebrush Shrub-Steppe	35.5	2:1	71	13.7	1:1	13.7	84.7
	3	Planted Grasslands	13.9	1.2:1	16.6	1.1	-	-	16.6
		Eastside Grasslands	0.3	2:1	0.7	10.2	-	-	0.7
		Sagebrush Shrub-Steppe	2.5	2:1	5	4	0.5:1	2	7.0
	4	Eastside Grasslands	0.1	2:1	0.1	0.9	-	-	0.1
		Rabbitbrush/Snakeweed Shrubland	15.7	1.5:1	23.5	1.1	-	-	23.5
	5	Intermittent or Ephemeral Streams	<0.05	0.5:1	<0.05	<0.05	-	-	<0.05

Final Habitat Category ¹	Preliminary Habitat Category ²	Habitat Subtype	Permanent Impact	Mitigation Ratio for Permanent Impacts ³	Permanent Impact Mitigation Need (Acres)	Temporary Impact	Mitigation Ratio for Temporary Impacts	Temporary Impact Mitigation Need (Acres)	Total Mitigation (Acres) ⁴
		Eastside Grasslands	51.6	0.5:1	25.8	19.3	-	-	25.8
3	3	Planted Grasslands	238.5	1:1	238.5	34.3	-	-	238.5
		Eastside Grasslands	608.3	1:1	608.3	217.3	-	-	608.3
		Rabbitbrush/Snakeweed Shrubland	1.7	1:1	1.7	5.6	-	-	1.7
		Sagebrush Shrub-Steppe	4.1	1:1	4.1	14.6	0.5:1	7.3	11.4
4	4	Planted Grasslands	375.2	1:1	375.2	9.7	-	-	375.2
		Seasonal Ponds	0.1	1:1	0.1	-	-	-	0.1
		Eastside Grasslands	221.2	1:1	221.2	36.7	-	-	221.2
		Rabbitbrush/Snakeweed Shrubland	93.8	1:1	93.8	34.4	-	-	93.8
5	5	Planted Grasslands	<0.05	0.5:1	<0.05	<0.05	-	-	<0.05
		Intermittent or Ephemeral Streams	0.3	0.5:1	0.1	0.1	-	-	0.1
		Eastside Grasslands	205.5	0.5:1	102.8	18.6	-	-	102.8
		Emergent Wetlands	<0.05	0.5:1	<0.05	<0.05	-	-	0.001
Total			8,048.4		4,822.2	1,643.6		46.6	4,868.8

1. Final habitat category includes the field survey information reflected in the preliminary habitat categorization with the addition of the ODFW wildlife overlays. Mule Deer Winter Range and PWCAs can increase the habitat category up to Category 2, unless the habitat was identified as Category 6 during surveys.
2. Preliminary habitat condition and category as mapped by the Applicant prior to construction.
3. Permanent impact areas based on final design; includes all areas within the Facility's fence line, even if areas within the fence line will not be covered by the Facility footprint. No mitigation is offered for Category 6 habitat.
4. Habitat subtypes were removed from this table that required no mitigation.

5.0 Mitigation Options

5.1 Option 1: Third-Party Payment to Provide

Under this option, the Applicant would meet the mitigation obligation by purchasing mitigation credits from a third-party ODFW-approved mitigation bank or otherwise partnering with a third party for the purpose of habitat acquisition, protection, and restoration. Prior to construction, the Applicant would provide ODOE with a Letter of Intent and contractual agreement to purchase mitigation credits from the ODFW-approved mitigation bank or a Memorandum of Understanding with the third party to fund habitat acquisition, protection, and restoration at the mitigation site. Proof of final credit purchase or easement contract would also be provided to ODOE prior to construction of the Facility. Once the actual mitigation need is finalized based on the as-built Facility impacts, the Applicant may choose to use credits purchased in excess of the need, if any, for other suitable projects under development by its parent company.

5.1.1 TerraWest Conservation Banking or Easement

One third-party payment to provide option the Applicant is considering is collaborating with the mitigation banking company TerraWest to identify suitable mitigation banking options for the Facility. TerraWest is an established mitigation banking company with approved banks and a strong conservation record in Oregon. TerraWest recently acquired a large ranch in the Columbia Plateau Ecoregion that contains sagebrush shrub-steppe habitat and overlaps with ODFW Mule Deer Winter Range. This Columbia Plateau mitigation bank may be compatible with the Facility's mitigation needs and is anticipated to be available prior to construction. TerraWest has discussed the site with ODFW and other regulators, including ODOE, and has identified a service area that includes the entire Columbia Plateau. The site supports mule deer and other big game, and proposed habitat enhancements include noxious weed control, grazing management, and riparian habitat improvements. TerraWest is preparing a resource management plan that describes the mitigation site and anticipated habitat uplift requirements, which would be provided to ODOE prior to construction of the Facility.

The Applicant and ODFW discussed the TerraWest option during a video call on June 15, 2026. ODFW stated that it is currently reviewing the management plan for the Columbia Plateau mitigation bank and indicated that it could be a sufficient mitigation option. No timeline was provided for completion of that review. In order to use this mitigation site for the Facility, given the lack of a concrete timeline for mitigation bank ODFW approval, TerraWest and the Applicant subsequently discussed the option of setting up a conservation easement at the mitigation site to meet the Facility mitigation needs, through an easement contract rather than a banking credit. Therefore, this mitigation option includes the vehicle of conservation banking as well as a conservation easement in order to meet the Facility's mitigation needs with the TerraWest Columbia Plateau mitigation site.

5.2 Option 2: Conservation Easement Lands Adjacent to the Facility

Under this option, the Applicant would establish a new conservation easement to fulfill the mitigation requirements of the Facility. The following section of this HMP describes several proposed habitat mitigation areas (HMAs) which could be used to create this easement and details their unique habitat characteristics.

If Option 2 is pursued, the Applicant will continue to work with ODFW to identify additional opportunities to protect and enhance more in-kind, in-proximity habitat in Sherman County. The Applicant will also collaborate with ODFW to ensure that the habitat enhancement actions, monitoring needs, and success criteria of the proposed HMAs have been appropriately defined.

5.2.1 Proposed Habitat Mitigation Areas

The Applicant has so far identified four discrete parcels that could be utilized for habitat mitigation, all located in Sherman County and close to the Facility. Three of these parcels are within the Facility's leased areas and will be henceforth referred to as Speedway West, Speedway Central, and Speedway East (Figure 2). The fourth parcel is outside of the Facility's leased area and is located approximately 0.75 miles south of the Facility site boundary; this parcel is owned by a local landowner, Berge Gunderson, and will henceforth be referred to as the Gunderson parcel (Figure 3).

Table 5 details several features of the four proposed HMAs including their acreage, habitat subtypes and categories, how much each parcel overlaps with PWCAs or Mule Deer Winter Range, any special status species observed during wildlife surveys, the distance from the edge of the HMA to the nearest turbine within the Facility, and any special or noteworthy land features that could affect the HMA's utilization by wildlife.

Table 5. Features of Proposed Habitat Mitigation Areas

Features	Proposed Habitat Mitigation Areas			
	Speedway West	Speedway Central	Speedway East	Gunderson
Acreage	480.2	331.6	167.8	1,044.7
Habitat Subtypes and Categories¹	Sagebrush Shrub-Steppe (2), Eastside Grasslands (2, 3, 4)	Sagebrush Shrub-Steppe (2), Eastside Grasslands (2, 3), Emergent Wetland (3), Urban and Mixed Environs (6)	Sagebrush Shrub-Steppe (2)	Sagebrush Shrub-Steppe (unknown), Eastside Grasslands (unknown), Agriculture (6)
PWCA Overlap	388.9 acres (81.0%)	234.4 acres (70.7%)	153.6 acres (91.5%)	390.0 acres (37.3%)
Mule Deer Winter Range Overlap	480.2 acres (100%)	331.6 acres (100%)	0.0 acres (0%)	1,044.7 acres (100%)

Features	Proposed Habitat Mitigation Areas			
	Speedway West	Speedway Central	Speedway East	Gunderson
Special Features	Drainage from Deschutes River (3.25 miles from the main stem)	N/A	Overlap with Finnegan Creek	Grimes Canyon and Finnegan Creek (adjacent to and small amount of overlap)
Special Status Species Overlap²	Common nighthawk (<i>Chordeiles minor</i>) occurrence	Northern harrier (<i>Circus hudsonius</i>) occurrence	N/A	N/A
Distance from Nearest Turbine in Miles (T-# - Turbine Number)	0.3 (T-42)	0.2 (T-83)	0.5 (T-78)	1.1 (T-84)
Habitat types were identified during field surveys in 2025 and 2026 for Speedway West, Central, and East. The Gunderson habitat types are based on aerial imagery best-guess estimates. Speedway West was not surveyed in its entirety during habitat categorization surveys.				
1. Data collected during 2024-2026 habitat categorization and special status wildlife field surveys.				

The total area of the four proposed HMAs is approximately 2,024 acres, while the required mitigation needs for this Facility are between 4,000 and 5,000 acres. These proposed HMAs could make up about half of the Facility's total mitigation needs, depending on the final layout and mitigation ratios. Therefore, if these HMAs are utilized for mitigation, additional mitigation efforts may be required. Additional mitigation may be completed by utilizing additional mitigation parcels, or with some combination of these parcels with the methods outlined in Options 1 or 3 (see Section 5.3), such that the total mitigation acreage requirement for the Facility is met.

5.2.2 ODFW Call – June 15, 2026

During the June 15, 2026 video correspondence with ODFW, the agency provided the following input on HMAs. ODFW stated the agency's preference that larger contiguous areas (greater than 1,000 acres) be utilized for habitat mitigation areas. The Gunderson parcel meets this specification, while the three Facility-leased Speedway parcels are smaller in size. Because the Gunderson parcel is not yet part of an easement developed by the Applicant, the Applicant will engage the landowners to determine the current quality and land-use state of the parcels, and to identify the appropriate habitat enhancement actions for the site.

Additionally, ODFW stated a preference for mitigation areas to be located away from the project site, and specifically not adjacent to proposed wind turbines (>500 meters away), to reduce the risk of avian fatalities associated with wildlife use of the mitigation areas. ODFW also requested that the Applicant provide the distance from each proposed turbine to the nearest boundary of each proposed HMA (Table 5).

ODFW also requested that the Applicant identify the proximity of each proposed HMA to nearby public land parcels. Parcels directly adjacent to proposed HMAs are preferred because they increase contiguity, improve wildlife connectivity, and may serve as future HMA expansions. The Applicant identified one 40-acre Bureau of Land Management (BLM) parcel adjacent to Speedway West, one 40-acre federally owned parcel adjacent to Speedway Central, two 40-acre BLM parcels adjacent to the Gunderson HMA, and no adjacent parcels near Speedway East. These parcels could be evaluated by the Applicant as potential additions to expand the proposed HMAs.

5.2.3 Habitat Enhancement Actions

Habitat enhancement actions will be implemented to improve vegetation quality and create more disturbance-resistant landscapes for wildlife use. The Applicant or a third party will select from the actions described in this section, in coordination with ODFW, ODOE, and any affected landowners, to identify the most appropriate measures for each proposed HMA. Final habitat enhancement actions will be based on field data and the biological objectives of each mitigation parcel, and will be developed prior to construction to improve habitat conditions, as appropriate and feasible. These actions will address the permanent and temporary habitat impacts of the Facility and support the ODFW goals set forth in the Fish and Wildlife Habitat Mitigation Policy. The specific enhancement actions for each parcel may include some or all of the following:

1. **Shrub Planting.** The Applicant would plant native shrubs in locations within an HMA. The Applicant would determine the size of shrub planting areas based on the professional judgment of a qualified biologist after a field survey. The size of shrub planting areas will depend on the size of the available HMA and opportunity for survival of planted shrubs. The shrub survival rate and number of shrubs per acre at 4 years after planting is an indicator of successful enhancement of habitat quality to Category 2. The Applicant would complete the initial shrub planting within 18 months after beginning construction of the Facility, in order to provide enough time for the Applicant to complete field surveys to determine the best sites for planting, coordinate with ODFW, get final approval by ODOE, and contract out the shrub plantings and maintenance.

The Applicant would obtain shrubs from a qualified nursery and would identify the area to be planted after consultation with ODFW, subject to final approval by ODOE. The Applicant would mark planted shrub clusters at the time of planting for later monitoring purposes and would keep a record of the number of shrubs planted.

2. **Seeding.** The Applicant would plant an ODFW-approved seed mix within the habitat mitigation area in areas where the plant community would benefit from overseeding, or in areas that have been recently disturbed (e.g., recent wildfire or weed treatment). The method for seed application would be determined primarily based on the size of the area to be seeded. The size of the seeded area will depend on the amount of recently disturbed area within the mitigation area, as well as the size of the area requiring revegetation after weed treatment (see Proposed Action 3.). The Applicant would complete the initial seeding within 18 months after the beginning of construction of the Facility, or a particular phase of the

Facility. The Applicant would record and mark the seeded areas at the time of seeding for later monitoring purposes. Additional seedings may be required following weed control efforts, after residual herbicide applications have worn off, or after new disturbances (such as fire) occur.

3. Weed Control. The Applicant would implement a weed control program. Under the weed control program, the Applicant would monitor the habitat mitigation area to locate weed infestations and identify treatment areas. The Applicant would continue weed control monitoring, as needed, for the life of the Facility. As needed, the Applicant would use appropriate methods to control weeds subject to approval by ODOE, Oregon Department of Agriculture (ODA), ODFW, and the county weed department. The Applicant may consider weeds to be successfully controlled when weed clusters have been eradicated or reduced to a non-competing level. Weeds may be controlled with herbicides, hand-pulling, or other method subject to agency approval. The Applicant would notify the landowner and ODOE of the specific chemicals to be used on the site and when spraying will occur. To protect locations where young desirable forbs may be growing, spot-spraying may be used instead of total area spraying.
4. Fire Control. The Applicant would implement fire control measures for wildfire minimization when Facility staff are working within the habitat mitigation area. The Applicant will employ appropriate fire prevention measures and methods to detect fires that may occur and a protocol for fire response if a fire were to occur when Facility staff were present. If any part of the habitat mitigation area is damaged by future wildfire, the Applicant would assess the extent of the damage and implement appropriate actions to restore habitat quality in the damaged area.
5. Riparian Planting. The Applicant would plant appropriate riparian species along streams or creeks to enhance riparian areas, if present, for the benefit of fish and big game. Riparian plantings will improve access to nutritious woody vegetation for wintering deer, which is essential to over-winter survival during severe winters when annual grasses and native bunchgrasses are covered in snow. Riparian plantings will improve shading of streams, which will improve temperature conditions for fish at the location of plantings, as well as downstream. Riparian plantings will also provide cover for big game and help stabilize soil. Riparian uplift was specifically identified by ODFW on June 15, 2026, as a positive, proactive form of habitat enhancement.
6. Fence Building. The Applicant would build fencing around the riparian plantings to reduce grazing pressure and allow riparian vegetation to grow. Fencing would be designed to exclude cattle but not deer. Woody vegetation is used by deer for foraging in the winter and provides cover for insulation and hiding.
7. Habitat Protection. The Applicant would restrict uses of the mitigation area that are inconsistent with the goals of the Fish and Wildlife Habitat Mitigation Policy.

5.3 Option 3: ODFW Fee-in-Lieu

The Applicant understands that ODFW is considering a fee-in-lieu program that could be used to mitigate habitat impacts related to energy facilities. However, at this time, this program is not yet available. Should such a program become available in the future, the Applicant could use a payment-to-provide mitigation option with the approval of ODOE and ODFW.

6.0 Monitoring

Ongoing monitoring will be a requirement for Option 2 (Conservation Easement Lands Adjacent to the Facility) only; under Option 1, the third party would provide monitoring reports directly to ODOE and ODFW. Under Option 2, the Applicant will hire a qualified investigator (botanist, wildlife biologist, or revegetation specialist) to conduct a comprehensive monitoring program for the mitigation area(s), as appropriate. The purpose of this monitoring is to evaluate on an ongoing basis the protection of the habitat quality and the results of enhancement actions, especially during the winter and wildlife breeding seasons.

The investigator will monitor the habitat mitigation area(s) for the life of the Facility beginning in the year following the implementation of enhancement actions. Monitoring will occur annually during the first 10 years following implementation of enhancement actions, then will occur every other year thereafter. The Applicant will develop a monitoring protocol in coordination with ODFW and ODOE depending on the enhancement actions selected. The monitoring protocol will be developed in consultation with ODOE and ODFW and could include an assessment of the following:

- Quantification of habitat types and ODFW habitat categories present at the habitat mitigation area;
- Description of the amount and quality of vegetation at the HMA;
- Description of the year-to-date climate data;
- Success of weed control measures through monitoring of infestation extents and recommend remedial action, if needed;
- Success of shrub plantings and native forb and grass seedings quantitatively through belt monitoring transects as well as qualitatively through an overall assessment of the treated area; if needed
- Percent survival of riparian plantings; if applicable
- Documentation of fence removal; if applicable
- Wildlife observed and notes on special status species (wildlife and plants) encountered onsite during routine monitoring; and
- Records of any wildfire occurrences within the HMA and any remedial actions taken to restore habitat quality in the damaged area, if applicable.

7.0 Success Criteria

Mitigation of permanent and temporary habitat impacts of the Facility may be considered successful if the Applicant meets the ODFW goal of no net loss and a net benefit to a sufficient quantity of habitat, or provides commensurate funding for a third party to perform enhancement and monitoring to a sufficient quantity of habitat. The Applicant must also ensure protection of the required quantity and quality of habitat within the HMA(s) for the life of the Facility, including providing commensurate funding for ODFW or a third party to do so.

The Applicant must protect a sufficient quantity of habitat to meet HMA requirements based on the final design configuration of the Facility. The Applicant will determine the actual HMA requirements for each phase of the Facility, subject to ODFW review and ODOE approval, before beginning construction. The Applicant, ODFW, or a third party may demonstrate improvement of habitat quality based on habitat categorization surveys and evidence of indicators such as survival of planted shrubs, natural recruitment of sagebrush, and successful weed control.

If the Applicant cannot demonstrate that an HMA is trending toward habitat quality goals described above within 5 years after initial enhancement actions, then the Applicant would propose remedial action. ODOE may require supplemental seeding or planting or other corrective measures.

8.0 Amendment of the HMP

This HMP may be amended from time to time if deemed necessary by ODOE, on behalf of EFSC, for the Facility to maintain compliance with the standard. Such amendments may be made without amendment of the site certificate. EFSC authorizes ODOE to agree to amendments to this HMP. ODOE shall notify EFSC of all amendments, and EFSC retains the authority to approve, reject, or modify any amendment of this HMP agreed to by ODOE.

9.0 References

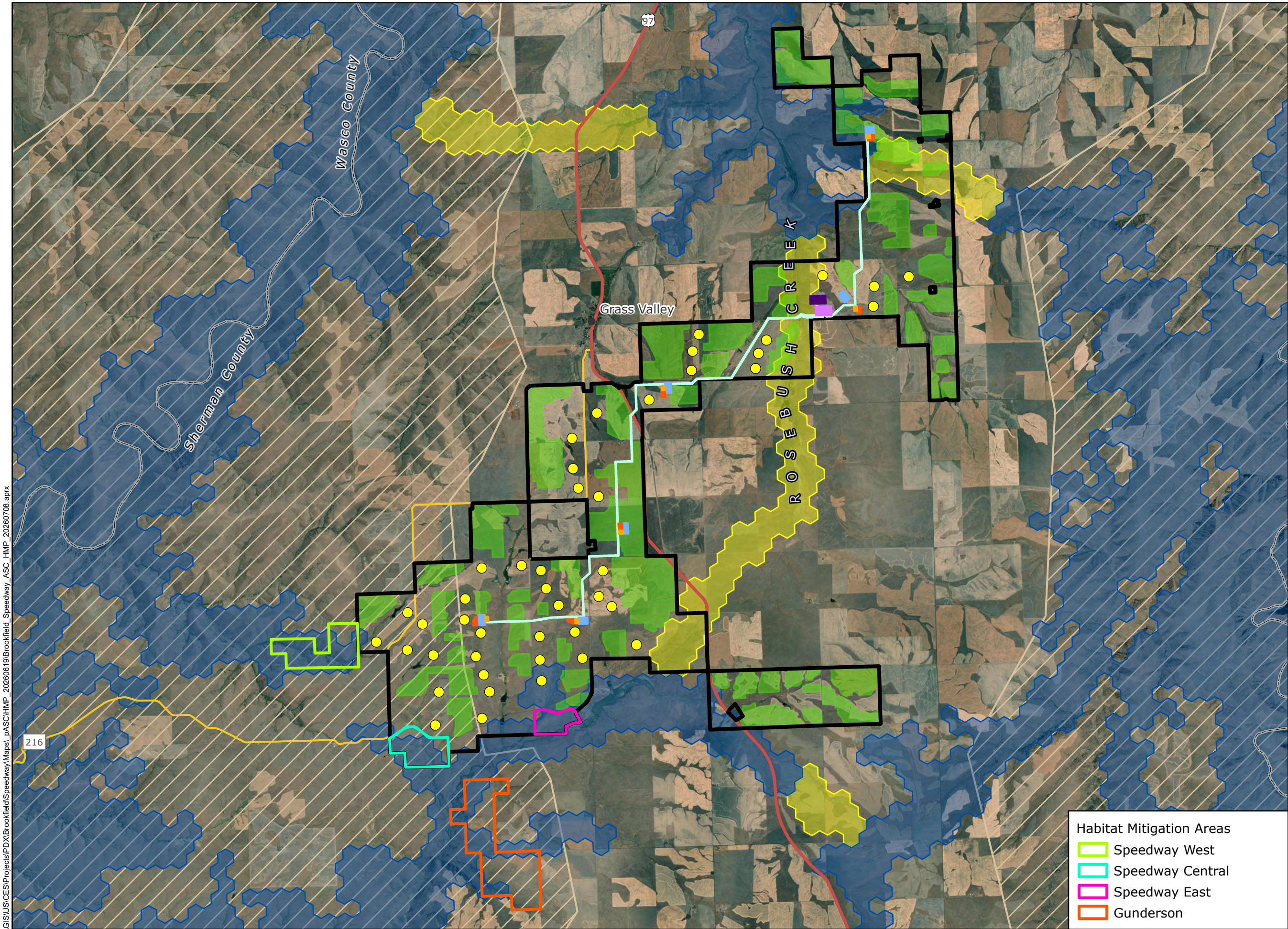
OCAMP (Oregon Connectivity Assessment and Mapping Facility). 2023. Technical Report. Oregon Department of Fish and Wildlife, Salem, OR. 61p.

ODFW (Oregon Department of Fish and Wildlife). 2013a. ODFW Winter Range for Eastern Oregon. <https://nrimp.dfw.state.or.us/DataClearinghouse/default.aspx?p=202&XMLname=885.xml> (Accessed May 2023).

ODFW. 2013b. Final 2013 ODFW Big Game Habitat Map Rationale. September 6, 2013. 6 pp.

Figures

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Speedway Energy Facility

Figure 1
Infrastructure Layout

SHERMAN COUNTY, OR

- Facility Site Boundary
- City/Town
- County Boundary
- US Highway
- State Highway
- Mule Deer Winter Range (ODFW 2013)
- Priority Wildlife Connectivity Areas
 - Connector
 - Region
- Proposed Project Infrastructure
 - Wind Turbine
 - Solar Array
 - Collection Line Corridor (230-kV)
 - Collector Substation
 - Central Substation
 - Battery Storage
 - Point of Interconnection
 - O&M Facilities



Reference Map

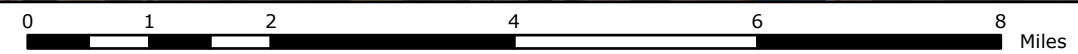


- Habitat Mitigation Areas
- Speedway West
 - Speedway Central
 - Speedway East
 - Gunderson



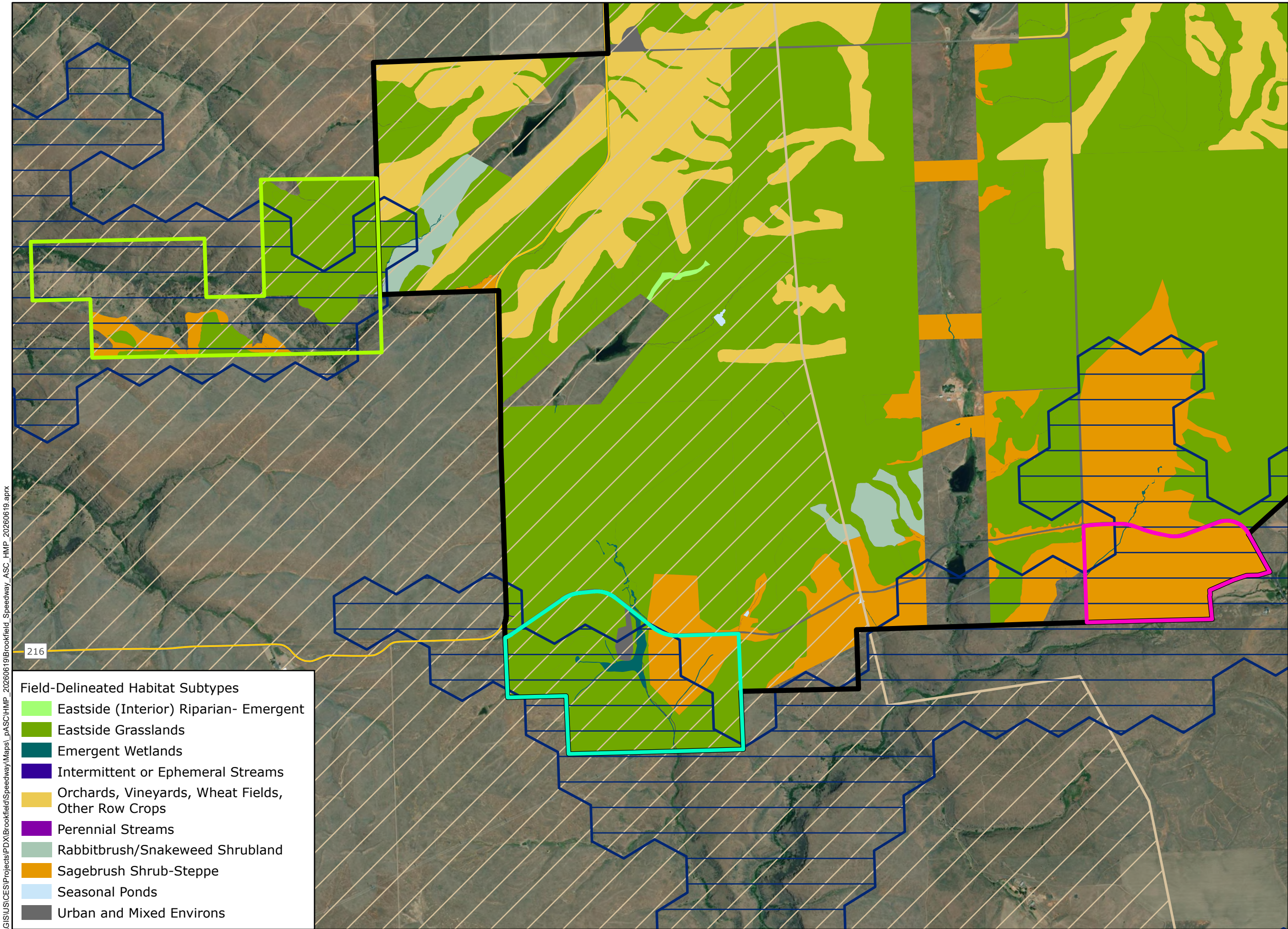
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Field-Delineated Habitat Subtypes

- Eastside (Interior) Riparian- Emergent
- Eastside Grasslands
- Emergent Wetlands
- Intermittent or Ephemeral Streams
- Orchards, Vineyards, Wheat Fields, Other Row Crops
- Perennial Streams
- Rabbitbrush/Snakeweed Shrubland
- Sagebrush Shrub-Steppe
- Seasonal Ponds
- Urban and Mixed Environs

Speedway Energy Facility

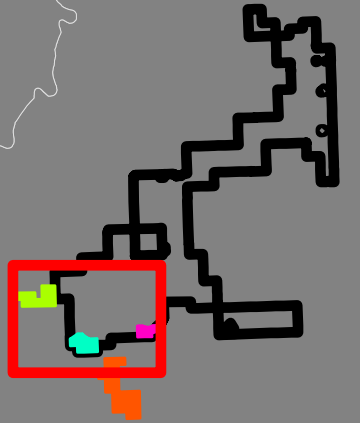
Figure 2
Proposed Speedway Leased-Area HMAs

SHERMAN COUNTY, OR

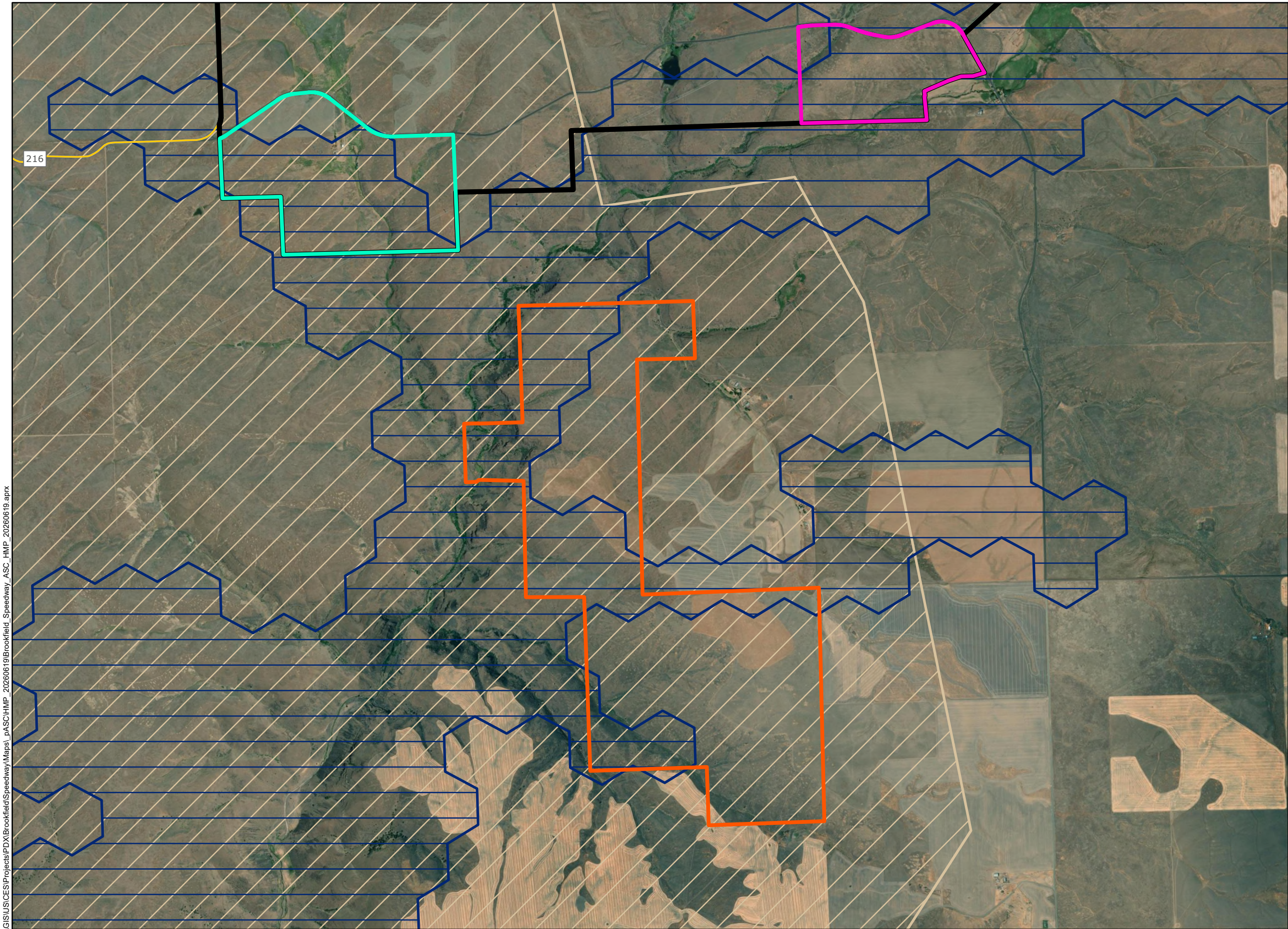
- Facility Site Boundary
- State Highway
- Mule Deer Winter Range (ODFW 2013)
- Priority Wildlife Connectivity Areas (ODFW 2023) - Region
- Habitat Mitigation Areas
 - Speedway West
 - Speedway Central
 - Speedway East



Reference Map



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Speedway Energy Facility

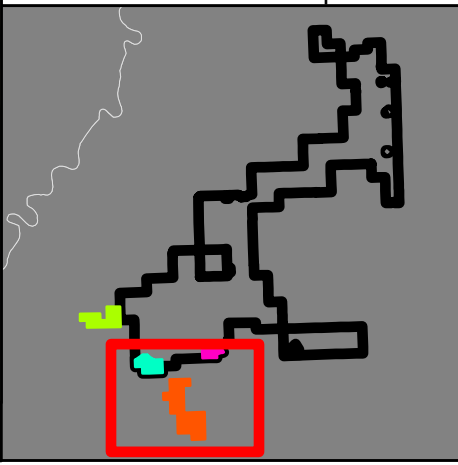
**Figure 3
Proposed
Gunderson HMA**

SHERMAN COUNTY, OR

-  Facility Site Boundary
-  State Highway
-  Mule Deer Winter Range (ODFW 2013)
-  Priority Wildlife Connectivity Areas (ODFW 2023) - Region
- Habitat Mitigation Areas**
 -  Gunderson
 -  Speedway Central
 -  Speedway East

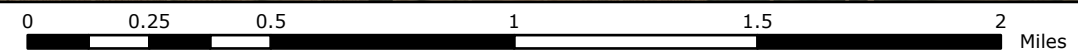


Reference Map



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WGS 1984 UTM Zone 10N



NOT FOR CONSTRUCTION

Attachment G-3. Draft Wildlife Monitoring and Mitigation Plan

Draft Wildlife Monitoring and Mitigation Plan Speedway Energy Facility

Prepared for



BGTF Speedway Project LLC

Prepared by



June 2026

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1.0 Introduction

BGTF Speedway Project LLC (Applicant) proposes construction and operation of the Speedway Energy Project (Facility), a renewable energy facility incorporating wind, solar and battery energy storage, located in unincorporated Sherman County, Oregon. The Facility's site boundary encompasses approximately 24,000 acres of privately owned land and is bisected by U.S. Route 97 (US-97). Within the site boundary, discrete areas will be developed for solar arrays, battery energy storage system (BESS), and wind turbines while avoiding sensitive areas and reserving areas for continued agricultural production.

This Wildlife Monitoring and Mitigation Plan (WMMP) describes wildlife monitoring that the Applicant will conduct during operation of the Facility. This WMMP has the following components:

1. Fatality monitoring program for the wind turbine components, including:
 - a. Standardized carcass searches;
 - b. Carcass persistence trials;
 - c. Searcher efficiency trials; and
 - d. Data analysis and fatality estimation.
2. Wildlife Response and Reporting System (WRRS);
3. Raptor nesting surveys; and
4. Data reporting.

Based on the results of the monitoring program, mitigation may be required. The selection of the mitigation actions should allow for flexibility in creating appropriate and proportional responses to monitoring results that cannot be known in advance. If the Oregon Department of Energy (ODOE) determines that mitigation is needed, the Applicant will propose appropriate mitigation actions to ODOE and will carry out mitigation actions approved by ODOE, subject to review by the Energy Facility Siting Council (EFSC). Fatality monitoring is not required for the solar or BESS components of the Facility, thus are not addressed in the WMMP.

2.0 Fatality Monitoring

The objective of fatality monitoring is to estimate the number of bird and bat fatalities that are attributable to operation of the wind component of the Facility. The Applicant will employ qualified and properly trained personnel (investigators) to perform fatality monitoring. The program will include standardized carcass searches to detect fatalities, methods to adjust for sources of bias inherent in fatality detection, and the estimation of annual fatality rates attributable to Facility operation based on these data. Sources of bias will be measured through (1) carcass persistence trials to estimate the mean length of time that a carcass persists and is therefore available for detection; (2) searcher efficiency trials to estimate the proportion of available carcasses detected

by investigators; and (3) estimation of the portion of the carcass fall distribution searched. Methods and results of all components of the fatality monitoring program will be reported to ODOE on an annual basis (Section 5.0).

If an investigator determines that a carcass found at the Facility (during searches or incidentally) is a state or federally threatened or endangered species, reporting timelines specified in Section 5.0 will be followed.

2.1 Standardized Carcass Searches

The objective of standardized carcass searches is to systematically search Facility turbines for bat, small bird, and large bird fatalities that occur in proximity to Facility infrastructure. Bird size criteria will be in accordance with the American Wind Wildlife Information Center (AWWIC) database determination of small birds, defined as total length ≤ 30 centimeter (AWWI 2020).

2.1.1 Search Plot Type and Configuration

Turbine-related fatalities are distributed non-uniformly around a turbine (carcass fall distribution). As a result, carcass density is not the same at all distances from a turbine, but typically rises over a short distance and eventually decreases to zero (Huso et al. 2016; Dalthorp 2020). The fall distribution depends on a number of factors including species' size and body mass (e.g., larger, heavier carcasses tend to land farther from turbines than lighter carcasses; Hull and Muir 2010; Huso et al. 2016; Choi et al. 2020), components of a turbine's size (e.g., ground clearance; Garvin et al. 2024), and operational speed of the turbines. Therefore, search plot size and configuration selected for standardized carcass searches is intended to address bias in fatality estimation through the spatial coverage of Facility turbines, addressing visibility of smaller carcasses (Good et al. 2012; Maurer 2017), and the proportion of the fall distribution searched for taxonomic groups of interest. Three types of search plots, and their corresponding methods, will be utilized at turbines across the Facility to minimize detection bias from any single method. The search plot types described here are designed to focus detection on the different size classes of the focus taxonomic groups; a range of potential search plot size is provided for each type of plot:

- **Road and pad plots:** This first search plot type will focus on detecting bats and small birds. Road and pad plots include the gravel pad surrounding the turbine, portions of access roads and edges of vegetation along the road that are within a range of 100 to 150 meters of the turbine.
- **Binocular scan plots:** This second search plot type will focus on detecting large birds. Binocular scan plots include a circular plot centered on the turbine with a radius range of 100 to 150 meters extending from the turbine.
- **Transect plots:** This third search plot type will be used to search for all three target class sizes (i.e., bats, small birds, and large birds). Transect plots include a circular plot centered on the turbine, extending from the turbine within a 50 to 100-meter range. The entirety of the radius will be searched using transects spaced at 6-meter intervals to ensure robust coverage of the plot.

The methods outlined in this plan will be updated as needed based on the actual number and model of wind turbines utilized for the Facility and according to best practices and current science at the time monitoring is initiated.

2.1.2 Search Schedule and Interval

To ensure a statistically robust sampling design that is representative of the various habitat conditions and turbine types at the Facility, 70 percent of turbines will be searched utilizing road and pad plots while 30 percent of Facility turbines will be searched using transect plots during spring, summer, and fall when the target taxonomic groups are anticipated. All turbines (100 percent) will be searched using the binocular scan method in all seasons (Table 1).

The 30 percent of turbines in which transect plots will be used will be selected prior to study setup using a stratified random sample method in which all turbines are stratified by habitat to ensure habitats are sampled in proportion to their occurrence at the Facility. In winter, 100 percent of Facility turbines will be searched utilizing concurrent road and pad and binocular scan plots. Thus, between all plot types, 100 percent of Facility turbines will be searched with a method intended to maximize detection probability for each size class.

Fatality monitoring will begin within six months of commencement of commercial operation of the Facility. Fatality monitoring will commence with a “clearance search.” The clearance search serves to identify fatalities that occurred prior to the initiation of the fatality monitoring program and for which the period of occurrence cannot be assigned (see Section 2.4).

Standardized carcass searches will occur in each season, conducted on an interval ranging from every 7 to every 14 days¹ for all three search plot types during the spring, summer, and fall seasons. This interval range is intended to capture migration and breeding seasons of birds and bats. In winter, the frequency and methods used for standardized carcass searches will change to a monthly schedule (once every 28 days) using just road and pad and binocular scans based on anticipated taxonomic group risk in that season. Seasonal timeframes and frequency of searches by season and search plot type are shown in Table 1.

The Applicant, in consultation with the Oregon Department of Fish and Wildlife (ODFW) and ODOE, may adjust the search plot types and frequency of these searches to reflect considerations for specific species of concern and conditions at the Facility (e.g., probability of a carcass persisting from one search to the next).

¹ The interval will be selected prior to study implementation as determined by Facility needs. Once determined, the interval will be fixed (rather than variable) by season.

Table 1. Standardized Carcass Search Parameters

Season	Dates	Search Interval ¹	Search Method ²	Target Size Class	Percent of Turbines	Number of Survey Periods	Searcher Efficiency Trial Carcasses	Carcass Persistence Trial Carcasses
Spring	March 16 to May 31	TBD	Walk road and pad	Bats/small birds	70	11	12 small bird, 12 bat	10 small bird, 10 bat, 10 large bird
			Binocular scans within a circular plot around turbine (includes road and pad)	Large birds	100		12 large bird	
			Transects spaced 6 meters apart	All classes	30		12 small bird, 12 bat, 12 large bird	
Summer	June 1 to Aug. 15	TBD	Walk road and pad	Bats/small birds	70	11	12 small bird, 12 bat	10 small bird, 10 bat, 10 large bird
			Binocular scans within a circular plot around turbine (includes road and pad)	Large birds	100		12 large bird	
			Transects spaced 6 meters apart	All classes	30		12 small bird, 12 bat, 12 large bird	
Fall	Aug. 16 to Nov. 15	TBD	Walk road and pad	Bats/small birds	70	13	12 small bird, 12 bat	10 small bird, 10 bat, 10 large bird
			Binocular scans within a circular plot around turbine (includes road and pad)	Large birds	100		12 large bird	
			Transects spaced 6 meters apart	All classes	30		12 small bird, 12 bat, 12 large bird	
Winter	Nov. 16 to March 15	28 Days	Walk road and pad	Small birds	100	4	12 small bird	10 small bird, 10 large bird
			Binocular scans within a circular plot around turbine (includes road and pad)	Large birds	100		12 large bird	

¹ The search interval will be selected from a range of 7 to 14 days prior to study implementation as determined by Facility needs. Once determined, the interval will be fixed (rather than variable) in each season.

² Search plot sizes will be selected from a range of 100 – 150 meters (road and pad plots, binocular scan plots) and 50 – 100 meters (transect plots) prior to study implementation.

2.1.3 Search Strategy and Fatality Documentation

Searching road and pad plots involves walking the turbine and the gravel area around the turbine base and walking along the extent of access roads that occurs within the search plot. Investigators will search for fatalities by walking along one side of all access roads searching the road and bare ground to the vegetation line, walking toward the turbine, searching around the turbine pad, and returning to the starting location on the opposite side of the access road (Good et al. 2012; Maurer 2017). This search strategy covers a portion of the carcass fall distribution around the turbine; a correction factor is applied during fatality estimation to account for the unsearched area (Section 2.5). When conducting road and pad plot searches, small bird and bat fatalities detected outside of the road and pad search area will be considered incidental.

Binocular scan plot searches will involve binocular scans from the turbine base where the investigators will scan 90 degrees from each of the four cardinal directions out to the extent of the circular search plot. Areas within the search plot that cannot be searched will be mapped as unsearchable areas (Hallingstad et al. 2018). Searchable areas and time spent scanning may be adjusted for habitat types and search methods after evaluation of the first searcher efficiency trial (see Section 2.3). As previously noted, binocular scans will occur during the same turbine visit as the road and pad plot search. All large birds discovered within 100 – 150² meters of the turbine will be attributed to binocular scan plots (i.e., while searching road and pads, or while scanning with binoculars) unless documented within a transect plot. Small bird and bat fatalities detected within the binocular scan search area but outside of the road and pad search area will be considered incidental. Searches in transect plots will involve walking 6-meter spaced transects within the 50 to 100-meter search radius² centered on the turbine. Areas within the transect plot that cannot be searched will be mapped as unsearchable areas (Huso and Dalthorp 2014). Examples of unsearchable areas may include a wetland, cliff face, barbed wire fencing, tall or dense vegetation, any area that precludes visibility through the binocular scan method or any circumstance within an area that precludes a searcher from safely conducting their search. Any carcass found outside the transect plots will be considered incidental.

Investigators will flag all bird and bat carcasses discovered. Carcasses are defined as a complete carcass or body part, three or more primary flight feathers, five or more tail feathers, or 10 or more feathers of any type concentrated together in an area 3 meters square or smaller. When parts of carcasses and feathers from the same species are found within a search plot, investigators will make note of the relative positions and assess whether these are from the same fatality.

All carcasses (bird and bat) found during the standardized carcass searches will be photographed, recorded, and labeled with a unique number. Investigators will record the location of the carcass using a global positioning system (GPS)-enabled device. Data collected per carcass found will include the date; the turbine number; the distance and bearing from the nearest turbine; the species, age, and sex of the carcass when possible; the extent to which the carcass is intact; the

² Range of potential search plot sizes; distance will be finalized prior to study implementation based on Facility needs.

estimated time since death; the habitat in which the carcass was found; whether the carcass was collected or left in place; and whether the carcass was found during a standardized carcass search or incidentally. Additional measurements may be required to identify the species of bat carcasses. Investigators will describe all evidence that might assist in determination of cause of death, such as evidence of electrocution, vehicular strike, wire strike, predation, or disease. If the necessary collection permits are not acquired by the Applicant (U.S. Fish and Wildlife Service [USFWS] Special Purpose Utility Permit), by the third-party monitor (ODFW Wildlife Scientific Taking Permit), or some combination herein, all carcasses will be discreetly marked so as to avoid double counting and will be left in place.

2.1.4 Duration

The investigators will perform one full year of fatality monitoring starting in the first year of Facility operation (Year 1). When Year 1 of monitoring at the Facility has been completed, the raw data will be compiled by the investigators and the Applicant in a comprehensive report, which will include fatality estimates (see Section 5.0). If fatality rates for the first year of monitoring at the Facility exceed any of the thresholds of concern (see Section 2.6), the Applicant will consult with ODOE and ODFW regarding potential mitigation. If mitigation is deemed appropriate, the Applicant will propose appropriate mitigation for ODOE and ODFW review within 6 months after reporting the fatality rates to the ODOE. Following review of the Year 1 monitoring report, the Applicant, ODOE, and ODFW will discuss the need for any additional monitoring at the Facility using the best available science at that time.

2.2 Carcass Persistence Trials

The objective of carcass persistence trials is to estimate the length of time bird and bat carcasses remain within the search area and available to be detected by investigators. Estimates of carcass persistence will be used to adjust raw carcass counts for removal bias.

The investigators will conduct a carcass persistence trial within each season defined in Table 1 during a fatality monitoring year. A minimum of 10 each of large bird, small bird, and bat surrogate trial carcasses will be placed in spring, summer, and fall; however, in winter, when bats are not anticipated to be at risk of collision, a minimum of 10 large and small birds only (i.e., no bats) will be placed. Trial carcass species may include legally obtained domestic species (e.g., ring-necked pheasants, chukar), legally obtained raptor species to the extent available, unprotected species (e.g. European starling, house sparrows) and dark mice as a surrogate for bats if insufficient bat carcasses are available. Additionally, as gamebirds often make for poor raptor surrogates (Hallingstad et al. 2023), detected raptor fatalities that are fully intact and estimated to be less than 5 days old will be used as opportunistic trial carcasses, with the initial check date set to correlate with the estimated time of death of the carcass. Trial carcasses will be marked discreetly for recognition by investigators and other personnel. Carcasses will be placed at randomly generated locations within the search plots. Small birds and bat surrogates will be placed within the road and

pad and transect plots, and large bird carcasses will be placed within the binocular scan plots on day 0 of the trial.

To minimize overseeding the site with carcasses available to scavengers or creating an unnatural attractant to potential scavengers, the Applicant will use the carcass persistence results from large bird carcasses placed within the binocular scan plots as correction for all large bird fatalities detected, regardless of plot type. Random carcass locations will be stratified to include placement within all plot types as binocular scan plots encompass the configuration of each of the other plot types.

Trial carcasses will be left in place until the end of the carcass persistence trial. An approximate schedule for assessing removal status is once daily for the first 4 days, and on days 7, 10, 14, 21, 28, and 35. This check schedule may be extended to include the possibility of longer persistence times after initial placement (e.g., 60 or 90 days) to capture potentially longer large bird persistence times. This check schedule may also be adjusted depending on actual carcass persistence rates, weather conditions, and coordination with the other survey work. The condition of scavenged carcasses will be documented during each assessment, and at the end of the trial all traces of the carcasses will be removed from the site. Scavenger or other activity could result in complete removal of all traces of a carcass in a location or distribution of feathers and carcass parts to several locations. This feather distribution will not constitute complete carcass removal if evidence of the carcass remains within an area similar in size to a search plot and if the evidence would be detectable to a searcher during a normal survey.

2.3 Searcher Efficiency Trials

Searcher efficiency is defined as the probability that investigators will find a carcass that is available to be found within the search plot. Several factors influence searcher efficiency, including investigator experience, vegetation conditions within a search plot, and characteristics of individual carcasses (e.g., size, color). The objective of searcher efficiency trials is to estimate the percentage of bird and bat fatalities that investigators can find.

Searcher efficiency will be tested for each search method utilized and for each targeted size class. A trained Searcher Efficiency Proctor will conduct searcher efficiency trials within each of the seasons defined in Table 1 during the year in which the fatality monitoring occurs. Within the road and pad plots, a minimum of 12 each of small bird and bat surrogate trial carcasses will be placed in the spring, summer, and fall seasons. In these three seasons, a minimum of 12 large birds will be placed in the binocular scan plots which encompass the road and pad search areas. In the transect plots, a minimum of 12 of each size class will be placed in spring, summer, and fall. In winter, when bat fatalities are not anticipated, a minimum of 12 small bird carcasses will be placed in road and pad plots, and a minimum of 12 large birds will be placed in binocular scan plots (i.e., no bats will be placed).

Investigators will not be notified of carcass placement or test dates. The Searcher Efficiency Proctor will place trial carcasses throughout a season to capture seasonal variation in site conditions that may affect the ability to detect fatalities, and the number of carcasses per trial so that the

investigators will not know the total number of trial carcasses being used in any trial. Similar to carcass persistence trials, searcher efficiency trial carcass species may include legally obtained domestic species (e.g., ring-necked pheasants, chukar), unprotected species (e.g. European starling, house sparrows), raptor carcasses (as necessary collection permits allow), and dark mice as a surrogate for bats if insufficient bat carcasses are available.

The Searcher Efficiency Proctor will mark the trial carcasses to differentiate them from other carcasses that might be found within the search plot and in a manner that does not increase carcass visibility. On the day of a standardized carcass search and before the beginning of the search, the Searcher Efficiency Proctor will place trial carcasses at randomly generated locations within search plots (one to three trial carcasses per search plot). The number and location of trial carcasses found during the standardized carcass search will be recorded. The number of efficiency trial carcasses available for detection (i.e., carcasses not removed by a scavenger) during each trial will be determined immediately after the trial by the Searcher Efficiency Proctor. Following the standardized carcass search, all traces of searcher efficiency trial carcasses will be removed from the site. If new investigators are brought into the search team, additional searcher efficiency trials will be conducted to ensure that detection rates incorporate investigator differences. The Applicant will include a discussion of any changes in investigators and any additional detection trials in the reporting required under Section 5.0 of this plan.

2.4 Incidental Finds and Injured Wildlife

Investigators may discover carcasses in areas surrounding the turbines but outside of the road and pad, binocular scan, or transect plots, while completing carcass persistence checks, or while moving through the Facility. Additionally, carcasses detected during clearance surveys do not have an associated timeframe for fatality occurrence and therefore are considered incidental finds. For each incidental find, the searcher will identify, photograph, record data, and collect the carcass as would be done for carcasses detected during standardized carcass searches. If the incidental find is located in a search plot within a reasonable timeframe from when that plot was to be searched (e.g., while placing searcher efficiency carcasses on the same day as the search), the fatality data will be included in the calculation of fatality rates. If the incidental find is found outside a designated search plot or search time, the data will be reported separately and excluded from statistical analysis.

The Applicant will contact a qualified wildlife rehabilitation specialist approved by ODOE to respond to injured wildlife. The Applicant will pay costs, if any, charged for time and expenses related to care and rehabilitation of injured native birds and bats found on the site. Injured birds and bats found during standardized searches will be considered fatalities for the purposes of data analysis and fatality estimation unless the cause of injury is clearly demonstrated to be unrelated to the Facility operations.

2.5 Fatality Estimation

Estimated annual fatality rates for the Facility will be calculated at the end of the monitoring year. Annual fatality rates will be estimated by adjusting raw fatality counts for sources of bias including carcass persistence, searcher efficiency, and the proportion of the fall distribution that was searched for each size class (Huso and Dalthorp 2014).

A correction factor (density weighted proportion; DWP) will be used to adjust for the proportion of the fall distribution that was searched for small birds and bats within the road and pad search plot, for large birds within the binocular scan plot, and for all three size classes within the transect search plots. For each individual search plot type, the DWP will be calculated as the product of the percentage of a 10-meter annulus that is covered by the searched area within the plot and the proportion of the fall distribution of a given size class that overlaps that 10-meter annulus. The product of these values for each 10-meter annulus that overlaps the search plot will be summed to calculate the overall proportion of the fall distribution searched for each size class within the respective search plot type. Calculations will utilize the Dalthorp et al. (2024) DWP program as allowed by sample size, the ballistic modeling results presented in Hull and Muir (2010), or fit carcass densities (Garvin et al. 2024) for small birds and bats, and Hallingstad (2018) for large birds. Other peer-reviewed models that update the state of the science may be utilized if they become available within the duration of the monitoring period.

Annual fatality rates will be estimated for eight categories, provided a sufficient sample size ($n \geq 3$) has been reached to allow estimation:

1. All birds;
2. Small birds;
3. Large birds;
4. All bats;
5. Migratory tree-dwelling bats;
6. Raptors;
7. Raptor species of special concern; and
8. State and federally listed threatened and endangered species and State Sensitive Species listed under Oregon Administrative Rules (OAR) 635-100-0040.

GenEst estimation software provides the most current state-of-the-science software for fatality estimation by minimizing biases associated with fatality estimation and allowing users to select the most appropriate methods and assumptions for project-specific circumstances. Rigorous testing of the performance of GenEst compared to other estimators using simulated data has shown GenEst to be the least biased, enabling more precise fatality estimation and reliable comparison of fatality estimates among projects (Simonis et al. 2018). Additionally, GenEst allows for fatality estimates to be split into subcategories which allows for estimates to be parsed by parameters such as season, year, or turbine type.

The estimation of annual fatality rates will account for:

1. The search interval;
2. The number of carcasses detected during standardized carcass searches within the monitoring period where the cause of death is assumed to be the operation of the Facility;
3. Carcass persistence expressed as the probability that a carcass remains in the study area (persists) and is available for detection by the investigators during persistence trials;
4. Searcher efficiency expressed as the probability that an available trial carcass is found by investigators during searcher efficiency trials; and
5. The portion of the fall distribution that was searched at the Facility (DWP) for the given size class and search plot type.

2.6 Mitigation

The Applicant will use best available science to resolve any uncertainty in the fatality monitoring results and to determine whether the results indicate that additional mitigation should be considered. ODOE may require additional, targeted monitoring if the data indicate the potential for significant impacts that cannot be addressed by analysis and appropriate mitigation.

Mitigation may be appropriate if fatality rates exceed a “threshold of concern” (Table 2). For the purpose of determining whether a threshold has been exceeded, the Applicant will determine the median estimated annual fatality rate for species groups after the monitoring year (provided three or more detections within any of the species groups listed in Table 2 are available to accurately determine estimates for these groups). Based on current knowledge of the species that are likely to use the habitat in the area of the Facility, the thresholds of concern in Table 2 will be used (with additional context provided by the most current regional fatality rates) to evaluate the fatality rates associated with the Facility and guide discussions on appropriate mitigation.

The Applicant understands that as of the preparation date of this WMMP, a Technical Advisory Committee has been established to assess the historic thresholds presented in Table 2, and that updated thresholds and/or impact assessment process may be available prior to the analysis of the monitoring data. Therefore, the Applicant will consider the option to utilize new “thresholds of concern” as available and meaningful to the monitoring effort described in this WMMP.

Table 2. Proposed Fatality Thresholds of Concern by Species Group

Species Group	Threshold of Concern¹ (Fatalities per MW)
Raptors ² (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.)	0.06
Bats ³	2.50
State sensitive avian species listed under OAR 635-100-0040 (Excluding raptors listed above.)	0.20
1. EFSC adopted the concept of "thresholds of concern" for raptors, grassland species, and state sensitive avian species in the Final Order on the Application for the Klondike III Wind Project (June 30, 2006; EFSC 2006a) and for bats in the Final Order on the Application for the Biglow Canyon Wind Farm (June 30, 2006; EFSC 2006b). The exceeding of a threshold, by itself, would not be a scientific indicator that operation of the Facility would result in range-wide population-level declines of any of the species affected. 2. Regionally, the median fatality rate for all raptors in the Northern Rockies avifaunal biome (includes eastern Oregon; 25 studies) was 0.06 birds/MW/year (AWWI 2020a). 75 percent of studies in the Northern Rockies reporting raptor estimates reported approximately 0.12 birds/MW/year. 3. Regionally, the median fatality rate for all bats in the USFWS Pacific Region (includes Oregon; 37 studies) was 0.69 bats/MW/year (AWWI 2020b). Seventy-five percent of studies in the Pacific Region reporting bat estimates reported approximately 1.88 bats/MW/year.	

If the data from Year 1 of monitoring show that a threshold of concern for a species group or individual state sensitive bird species (assuming a minimum sample size of three individuals) has been exceeded, the Applicant will consult with ODOE and ODFW to determine if mitigation is appropriate based on analysis of the data and consideration of any other significant information available at the time. ODFW, ODOE, and the Applicant may review fatality data on a per-turbine basis to aid in discussions. If mitigation is determined to be necessary, the Applicant will propose mitigation measures designed to benefit the affected species or species group. ODOE may recommend additional, targeted data collection if the need for mitigation is unclear based on the information available at the time. If, following consultation and any such additional data collection, ODOE determines that mitigation is required, the Applicant will propose mitigation measures designed to benefit the affected species or species group, commensurate with the level of impact.

Acceptable mitigation may include, but is not limited to, contributions to wildlife rehabilitators, conducting or making a contribution to research that will aid in understanding more about the affected species or species group and its conservation needs in the region, improving wildfire response, constructing and maintaining artificial nest structures for raptors, or habitat mitigation. Habitat mitigation may include, but is not limited to, protection of nesting, foraging, or roosting habitat for the affected species or 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 protect land that is in proximity to the

Facility and would otherwise be subject to development or use that would diminish the wildlife value of the land.

3.0 Wildlife Response and Reporting System

The wildlife response and reporting system (WRRS) is a program for maintenance personnel to report wildlife (including bird and bat) casualties found during operation of the Facility. Maintenance personnel will be trained in the methods needed to carry out this program. This monitoring program includes the initial response, handling, and reporting of bird and bat carcasses discovered incidental to maintenance operations (“incidental finds”).

All carcasses discovered by maintenance personnel will be photographed and recorded. If maintenance personnel find a carcass at the Facility, they will notify a Facility biologist who will identify the carcass. If state and or federal collection permits are acquired by the Applicant, the biologist will adhere to the terms of these permits and either leave the carcass in place after documentation is complete or collect the carcass according to the terms of the appropriate permit.

Prior to construction, the Applicant shall develop and implement a protocol for handling injured birds. Any injured native birds found at the Facility may be carefully captured by a trained Facility biologist or technician and transported to a qualified rehabilitation specialist approved by ODOE. Alternatively, the Applicant may contact a qualified rehabilitation specialist approved by ODOE to respond to injured wildlife. The Applicant shall pay costs, if any, 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 Facility operations.

4.0 Raptor Nest Surveys

The objectives of raptor nest surveys are: (1) to count raptor nests on the ground or aboveground in trees or other aboveground nest locations in the vicinity of the Facility; and (2) to determine whether there are noticeable changes in nesting activity or nesting success in the local populations of Swainson’s hawk (*Buteo swainsoni*), bald eagle (*Haliaeetus leucocephalus*), and golden eagle (*Aquila chrysaetos*), as applicable based on final design and turbine locations.

The Applicant will conduct short-term and long-term monitoring. The investigators will use aerial and ground surveys to evaluate nest success by gathering data on active nests, on nests with young, and on young fledged. The Applicant will hire independent third-party investigators to perform raptor nest surveys.

4.1 Short-Term Monitoring

Short-term monitoring will be done in two monitoring seasons. The first monitoring season will be in the first full raptor nesting season after completion of construction of the Facility. The second monitoring season will be in the fifth year of operation. The Applicant will provide a summary of

the first-year results in the monitoring report described in Section 5.0. After the second monitoring season, the investigators will analyze two years of data compared to the baseline data.

During each monitoring season, the investigators will conduct a minimum of one aerial and one ground survey for raptor nests in late May or early June and additional surveys as described in this section. The survey area is a 2-mile buffer around turbines plus a 0.5-mile buffer around solar arrays. For the ground surveys while checking for nesting success (conducted within the turbine locations and up to a maximum of 0.5 miles from the turbine locations), nests outside of parcels that are under a lease agreement with the Applicant will be checked from public roads, if feasible.

All nests discovered during pre-construction surveys and any nests discovered during post-construction surveys, whether active or inactive, will be given identification numbers. GPS coordinates will be recorded for each nest. Locations of inactive nests will be recorded because they could become occupied during future years.

Determining nest occupancy may require one or two visits to each nest. Aerial surveys for nest occupancy will be conducted within a 2-mile buffer around turbine locations and a 0.5-mile buffer around solar arrays. For occupied nests, the Applicant will determine nesting success by a minimum of one ground visit to determine the species, number of young and young fledged within the Facility site boundary and up to 0.5 miles from the Facility site boundary. “Nesting success” means that the young have successfully fledged (i.e., the young are independent of the core nest site).

4.2 Long-Term Monitoring

In addition to the 2 years of post-construction short-term raptor nest surveys described in Section 5.1, the investigators will conduct long-term raptor nest surveys at 5-year intervals for the life of the Facility. Investigators will conduct a long-term raptor nest survey in the raptor nesting season every 5 years after the second short-term monitoring season, in years divisible by 5 (e.g., 2040, 2045, etc.). In conducting long-term surveys, the investigators will follow the same survey protocols as described in Section 5.1 unless the investigators propose alternative protocols that are approved by ODOE. In developing an alternative protocol, the investigators will consult with ODFW and will take into consideration other raptor nest monitoring conducted in adjacent areas. The investigators will analyze the data—as a way of determining trends in the number of raptor breeding attempts the Facility supports and the success of those attempts—and will submit a report after each year of long-term raptor nest surveys.

5.0 Data Reporting

The Applicant will report wildlife monitoring data and analysis to ODOE for each calendar year in which wildlife monitoring occurs. Monitoring data include fatality monitoring program data, WRRS data, and raptor nest survey data. The Applicant may include the reporting of wildlife monitoring data and analysis in the annual report required under OAR 345-026-0080 or submit this information as a separate document at the same time the annual report is submitted. In addition,

the Applicant will provide to ODOE any data or record generated in carrying out this monitoring plan upon request by ODOE.

The Applicant will notify USFWS and ODFW, respectively, if any federal or state endangered or threatened species are killed or injured on the Facility site within 24 hours of species identification.

6.0 Amendment of the Plan

This WMMP may be amended by agreement of the Applicant and EFSC. Such amendments may be made without amendment of the site certificate. EFSC authorizes ODOE to agree to amendments to this plan and to mitigation actions that may be required under this plan. ODOE will notify EFSC of all amendments and mitigation actions, and EFSC retains the authority to approve, reject or modify any amendment of this plan or mitigation action agreed to by ODOE.

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