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**SCHNEBLY COULEE SOLAR ENERGY PROJECT  
Wildlife and Habitat Survey Report**

Prepared for  
Schnebly Coulee Solar Energy LLC

January 2024



Final

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## Wildlife and Habitat Survey Report

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Schnebly Coulee Solar Energy LLC

January 2024

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# SCHNEBLY COULEE SOLAR ENERGY PROJECT

## Wildlife and Habitat Survey Report

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### 1.0 Introduction

Schnebly Coulee Solar Energy LLC (Schnebly Solar) is developing the Schnebly Coulee Solar Energy Project (Project) in Kittitas County, Washington (**Figure 1**). Schnebly Solar contracted Environmental Science Associates (ESA) to conduct surveys for threatened, endangered, and sensitive wildlife species (TESS), raptor nests, and to map habitat at the Project. The Project area encompasses approximately 1,280 acres (ac) of private land. In the spring of 2023, ESA conducted a TESS and raptor nest survey along with habitat typing within 1208 acres of the Project area, defined as the “Spring 2023 Study area”. Following completion of the Spring 2023 survey effort, additional land was added to the Project. In the fall of 2023, ESA completed additional surveys within the area not surveyed during the Spring 2023 effort, consisting of approximately 78 acres defined as the “Fall 2023 Study area” (**Figure 2**). Collectively, the Spring 2023 and Fall 2023 Study areas comprise the entirety of the Project area. In the absence of state and federal solar energy and wildlife guidelines, survey objectives were designed to comply with Tier 3 studies described in the U.S. Fish and Wildlife Service (USFWS) *Land-Based Wind Energy Guidelines* (WEG) (USFWS 2012), the USFWS *Eagle Conservation Plan Guidance* (ECPG) (USFWS 2013), the USFWS *Updated Eagle Nest Survey Protocol* (USFWS 2020), and the Washington Department of Fish and Wildlife (WDFW) *Wind Power Guidelines* (WPG) (2009).

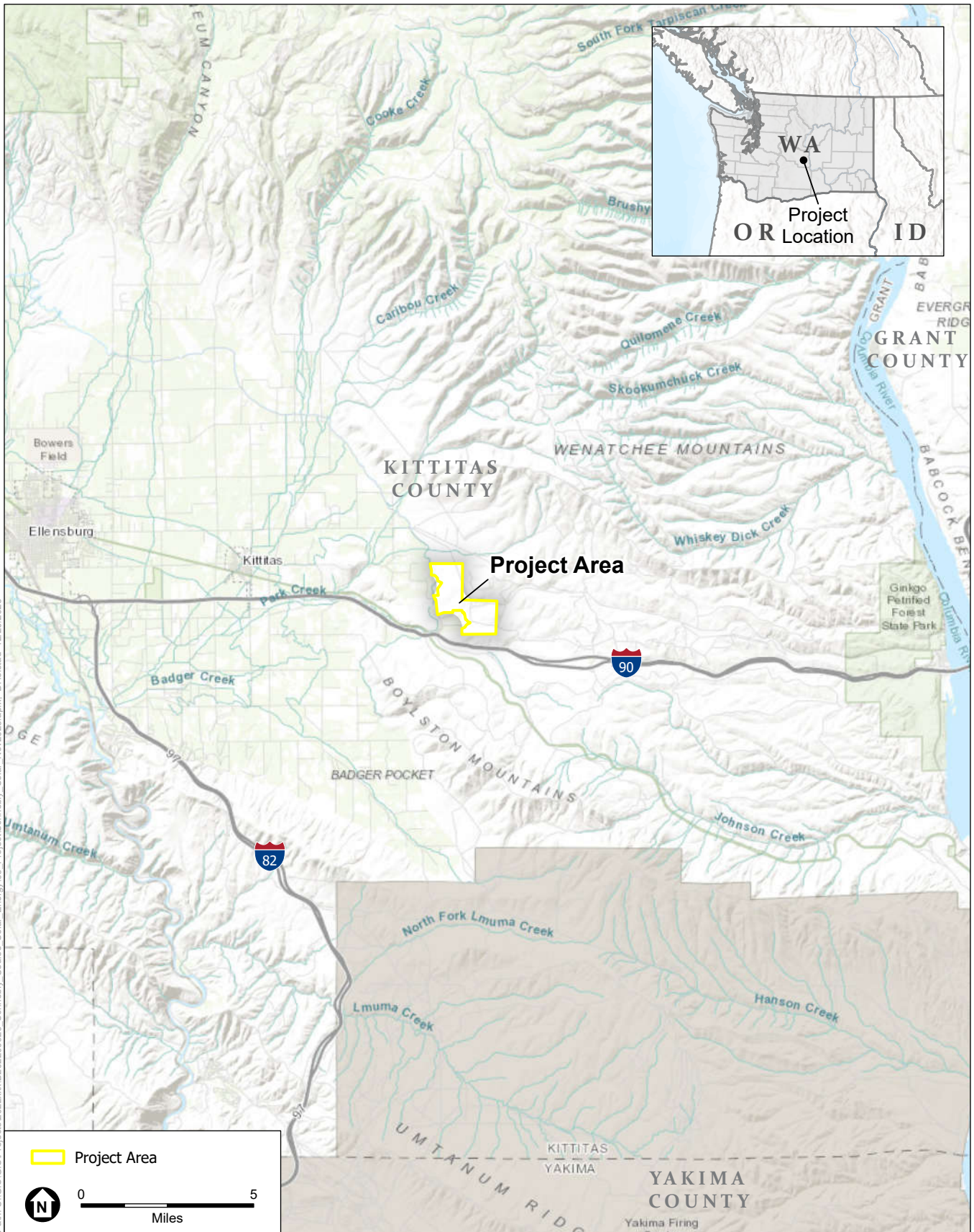
TESS surveys were conducted within the Project area, raptor nest surveys were conducted within the Project area and a ½-mile (mi) buffer (Raptor Nest Study area), and habitat types were surveyed and mapped within the Project area. This report was prepared to present the findings of all surveys conducted at the Project.

### 2.0 Project and Raptor Nest Study Areas

The Project area encompasses approximately 1,286 ac of private property in Kittitas County, Washington in the Columbia Plateau Ecoregion (**Figure 1**). Elevation in the Project area ranges from approximately 1,950 to 2,100 feet (ft; 595 to 640 meters [m]) above mean sea-level (msl). Within the Columbia Plateau, the Project area is located in the Level IV Yakima Folds ecoregion which is often used for cattle grazing and consists of extensive sagebrush, bunchgrass, and non-native cheatgrass associations (Clarke and Bryce 1997; USEPA 2019). Land use in the Project area is zoned “Agriculture 20” (A20) and has been historically used for livestock grazing.

The Raptor Nest Study area includes the Project area and a ½-mi buffer around the Project area (**Figure 3**). The ½-mi buffer is similarly zoned (A20) and situated within the Yakima Folds ecoregion of the Columbia Plateau. At the time of the survey, the Raptor Nest Study area totaled approximately 4,304 ac. The topography of the Project and Raptor Nest Study areas is generally flat, ranging from approximately 1,950 feet (ft) to 2,100 ft (595 meters [m] to 640m) Mean Sea-Level (MSL).

According to the 2019 *National Land Cover Database* (NLCD) (2019; Homer et al. 2020), most of the Project area is mapped as *Shrub/Scrub* (79%), followed by *Herbaceous* (18%), *Developed, Open Space* (2 %), and *Hay/Pasture* (<1%) (**Figure 3**). NLCD maps the Raptor Nest Study area as *Shrub/Scrub* (63%), followed by *Hay/Pasture* (18%), *Herbaceous* (13%), *Developed areas* (5%) and *Open Water* (<1%) (**Figure 3**).

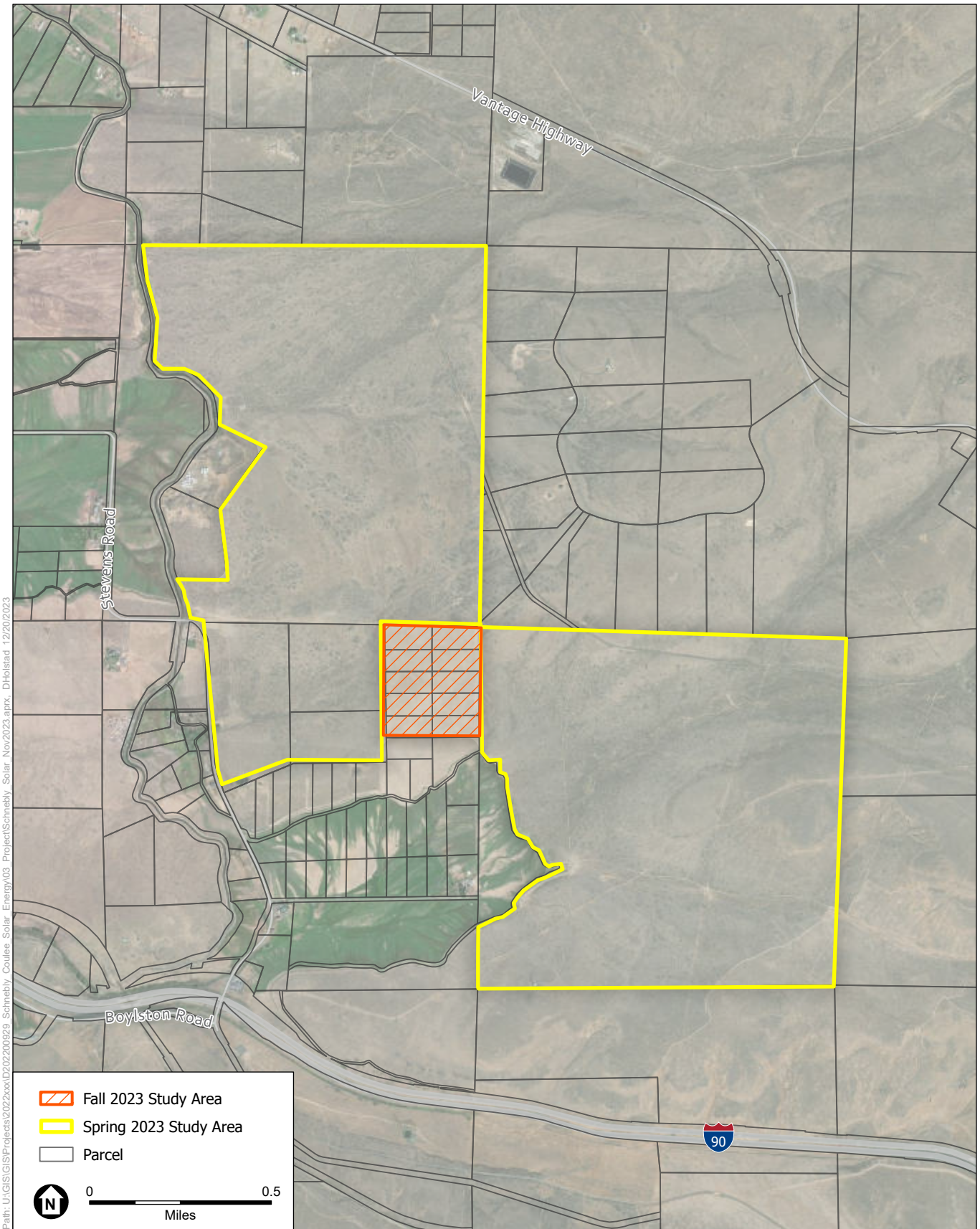


SOURCE: Basemap: Esri; County Boundaries: WA DNR; Study Area: ESA.

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**Figure 1**  
Location Map





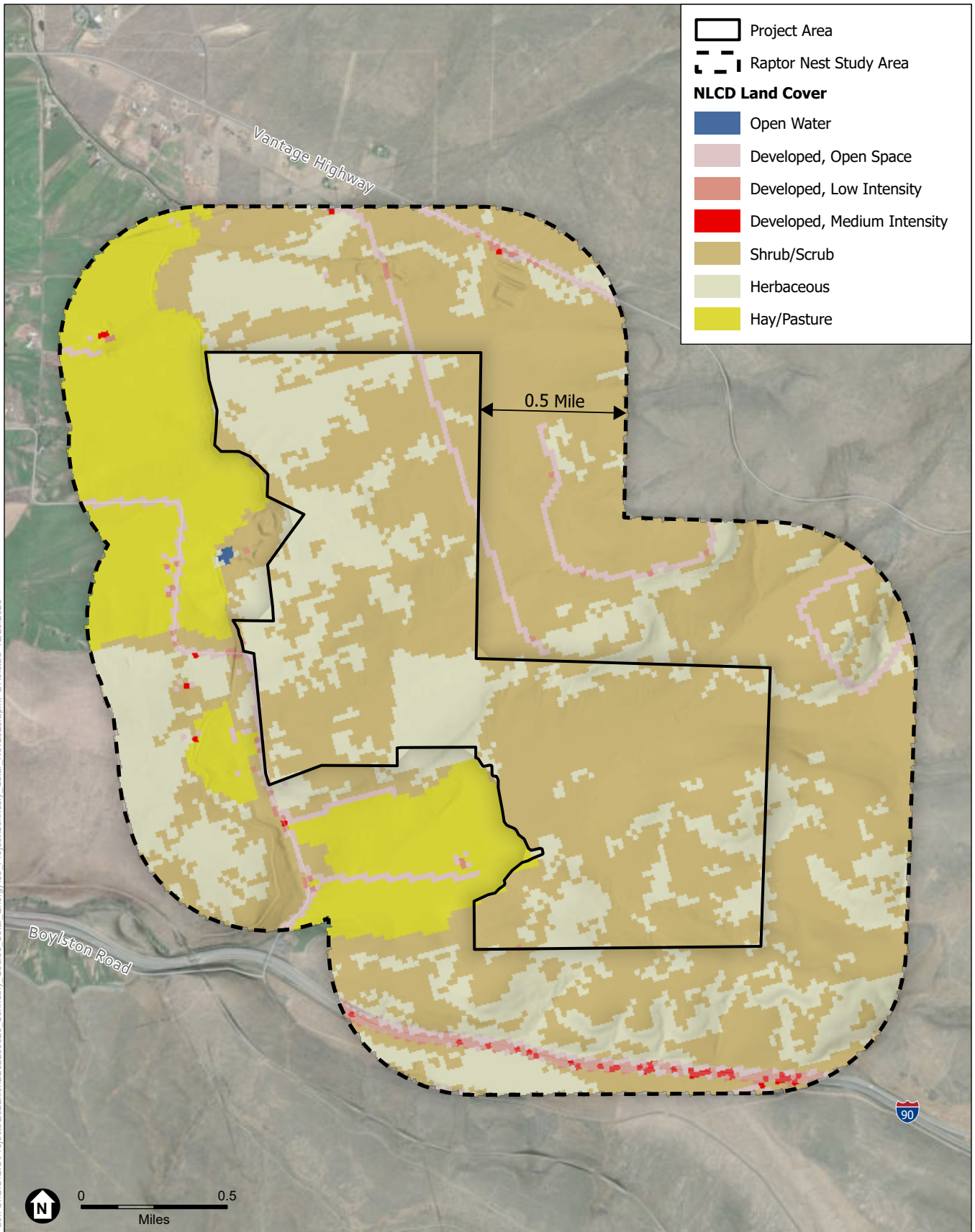
SOURCE: Imagery: Maxar, 2019; Streets: Open Street Map; Study Area: ESA; Taxlots: Kittitas County.

Schnebly Coulee Solar Energy

**Figure 2**  
Project Area







SOURCE: Imagery: Maxar, 2019; Landcover: USGS; Study Area: ESA.

Schnebly Coulee Solar Energy

**Figure 3**  
NLCD Map

## 3.0 Methods

A list of wildlife, habitats, and plant species with the potential to occur within the Project area listed as threatened, endangered, or sensitive by the USFWS or WDFW was compiled during the Tier 1 and Tier 2 Site Characterization Study (SCS) (ESA 2019) from an Information for Planning and Consultation (IPaC) query (USFWS 2019), the WDFW Threatened and Endangered Species List (WDFW 2023), and WDFW feedback during the SCS review on March 4, 2019. Additionally, species identified as Washington Priority Habitat and Species (PHS; WDFW 2008) and Birds of Conservation Concern (BCC; USFWS 2021) were reviewed in preparation for these surveys and documented, if observed.

In addition to the methods described in Section 3.1, species-specific surveys were conducted for species of interest identified by WDFW at the Project (described in Sections 3.1.1 – 3.1.3) and include Townsend’s ground squirrel (*Urocitellus townsendii*; State Candidate), burrowing owl (*Athene cunicularia*; State Candidate), and pauper milkvetch (*Astragalus misellus* var. *pauper*; State Sensitive). In addition to TESS, surveys were conducted to map habitats within the Project area and to document raptor nests within the Project area and Raptor Nest Study area.

### 3.1 Threatened, Endangered, and Sensitive Species Surveys

The objective of the TESS survey was to document all observations of TESS within the Project area. Surveys in the Spring 2023 Study area were conducted by two ESA biologists on April 26 to 28, 2023, and May 16 to 18, 2023, for a total of two surveys. Surveys were conducted a minimum of two weeks apart to account for seasonal variability. TESS surveys in the Fall 2023 Study area were conducted by two ESA biologists on October 23 to 24, 2023. Because the survey in the Fall 2023 Study area occurred outside of the season when certain species would be active, if any sign (i.e., ground squirrel burrows) were observed, a follow-up survey would be conducted to assess occupancy and extent of resources during the relevant active season. The surveys were conducted by walking wandering, informed transects within the Project area tracked on a Global Positioning System (GPS) to ensure entire coverage of the Project area. In addition to the wandering transects, separate surveys were tailored for wildlife and plant species that were identified as a species of interest at the Project by WDFW and USFWS, including Townsend’s ground squirrel, burrowing owl, and pauper milkvetch as noted above and explained in more detail below.

#### 3.1.1 Townsend’s Ground Squirrel

The objective of the Townsend’s ground squirrel surveys was to document an inventory of squirrel burrows and their occupancy along with delineating the extent of any colonies within the Project area. Since no known historical colonies of Townsend’s ground squirrels exist within the Project area, surveys followed WDFW approved protocols outlined in *Status and Habitat Use of the Washington Ground Squirrel (Spermophilus washingtoni) on State of Oregon Lands* (Morgan and Nugent 1999) for areas of unknown occupancy of Washington ground squirrels (*U. washingtoni*). Due to the biological and ecological similarity between ground squirrel species, the

protocols outlined in Morgan and Nugent (1999) are applicable for surveying Townsend's ground squirrels.

In accordance with Morgan and Nugent (1999) protocol, ESA biologists conducted transect surveys while scanning the ground for signs of ground squirrels (scats, tracks, or appropriately sized burrows) while listening for vocalizations. If a sign was observed or vocalization heard, a 98 ft (30 m) radius of ground was scanned for additional signs. If no additional signs were observed, radial transects spaced approximately 98 ft (30 m) apart from the initial observed sign would be surveyed out to 492 ft (150 m), documenting all additional observed signs. This process was continued if a ground squirrel burrow was detected until the outermost burrows were identified which completed the delineation of the colony boundary. After a colony delineation was completed, surveys were continued along the same trajectory as the initial survey.

### 3.1.2 Burrowing Owl

The objective of the burrowing owl surveys was to identify the extent of occupied burrowing owl burrows within the Project area. Burrowing owl surveys followed protocols outlined in The California Burrowing Owl Consortium's (CBOC's) *Burrowing Owl Survey Protocol and Mitigation Guidelines* (1993). Following the CBOC protocol, ESA biologists surveyed for burrowing owl with binoculars and spotting scopes while walking through suitable habitat over the entire Project area and within an approximately 500 ft (150 m) buffer around the Project area. The walking transects were spaced to allow 100 percent visual coverage of the ground surface within the Project area and were no more than approximately 100 ft (30 m) apart. Surveys were conducted at first light (5:00am) to 5 hours after sunrise (11:00am) and between 5:00pm until dark. If burrowing owls or occupied burrows were identified, the number of owls observed, owl behavior, and the burrow concentration areas were recorded geospatially on a digital tablet. An occupied burrow was determined by observing signs of molted feathers, pellets, eggshells, prey remains, or excrement at a burrow entrance, or by observing a burrowing owl in a burrow (CBOC 1993). With the timing of the TESS surveys, burrowing owl surveys were conducted coinciding with the spring breeding and summer nesting period (February 1 to August 31) when burrowing owls are most active.

### 3.1.3 Pauper Milkvetch

The objective of the pauper milkvetch surveys was to document the location of individual plants within the Project area. Pauper milkvetch surveys were conducted by two ESA biologists from May 16 to 18, 2023, to coincide with the blooming season, and followed the Intuitive Controlled Survey method outlined in *Survey Protocols for Survey & Manage Strategy 2 Vascular Plants* (Whiteaker et al. 1998). In accordance with this method, habitats with a high potential to support target sensitive plant species undergo a high-intensity survey (i.e., 100 percent visual exam), and habitats with a lower potential undergo a less intensive inspection where a representative cross-section is surveyed. Within areas that were bare or had cryptogamic crusts, ESA biologists meandered through the survey area on foot. When a habitat with a high potential to support sensitive plant species was observed, ESA biologists walked the full extent of potential habitat.

Plant species were identified using technical dichotomous keys from *Flora of the Pacific Northwest* (Hitchcock et al. 2018).

## 3.2 Raptor Nest Surveys

The objective of the raptor nest surveys was to locate and document raptor nests and determine territory occupancy and breeding status within the Project and Raptor Nest Study areas. The ground-based surveys were conducted by two ESA biologists from April 26 to 28, 2023, in accordance with guidance outlined in the WEG, WPG, ECPG, and the *Updated Eagle Nest Survey Protocol* (USFWS 2020). The Spring 2023 survey effort coincided with the breeding season for raptors in the region (USFWS 2007). The entirety of the Project area was included within Raptor Nest Study area assessed during the April 2023 survey.

Data was recorded for all raptor nests observed within both the Project area and Raptor Nest Study area, including a unique nest identification number, GPS coordinates, species (if known), nest substrate, and nest condition. All metrics documented in the field, including those describing raptor species, nests, and habitat, were collected digitally along with spatial data and georeferenced photos. Descriptions of terms used in nest documentation are described below:

- *Species* – All raptors and/or associated nests observed were identified to the species level unless the observation did not allow for assessment of diagnostic characteristics. The age and sex of individuals were also documented when possible. Nests that were unoccupied or appeared old or abandoned were documented to populate a database of nests that could potentially become suitable for nesting raptors in the future.
- *Nest Substrate* – The substrate on which a nest was observed, included human-made structures (abandoned buildings, power line poles), cliffs, and trees (tree type/species), if present.
- *Nest Status* – Nest status was categorized following definitions used in the WEG, WPG, and ECPG. Nests were classified as “occupied” if any of the following were observed at the nest structure: 1) an adult in an incubating position, 2) eggs, 3) nestlings or fledglings, 4) presence of an adult, 5) a newly constructed or refurbished stick nest in the area where territorial behavior of a raptor had been observed earlier, or 6) a recently repaired nest with fresh sticks or fresh boughs on top, and/or whitewash and/or molted feathers on its rim or underneath. Occupied nests were further classified as “active” if: 1) an adult was present on the nest in incubating position, 2) an egg or eggs were present, or 3) nestlings were observed. Occupied nests were classified as inactive if adults were not observed in a brooding position and no eggs or chicks were present. Nests not meeting the above criteria during the aerial survey were classified as “unoccupied and inactive”.
- *Nest Condition* – Nest condition was categorized as “poor”, “fair”, or “good” and provided a general sense of when a nest or nest site may have last been used. Nests in poor condition were identified as those in a state of disrepair deemed not currently suitable for successful nesting. Fair condition nests were identified to have a generally well-defined bowl but may require repair for successful nesting. Nests in good condition had well-defined bowls suitable for immediate nesting or were observed currently in use.
- *Nest Location* – The nest location was categorized as either occurring within the Project area or Raptor Nest Study area (i.e., within ½-mi of the Project, excluding the Project area).

### 3.3 Habitat Mapping

The objective of habitat mapping was to characterize and map general habitat types within the Project area to inform siting and mitigation requirements for potential temporary and permanent impacts to habitat resulting from Project development. Habitat types were consistent with those described by the WDFW PHS List (2008) and included the following:

- *Shrubsteppe* – habitat dominated by nonforested vegetation consisting of one or more layers of perennial bunchgrasses and a conspicuous but discontinuous layer of shrubs.
- *Eastside Steppe* – habitat consisting of a nonforested vegetation type dominated by broadleaf herbaceous flora (i.e., forbs), perennial bunchgrasses, or a combination of both. Shrubs are either absent or scattered in the overstory of eastside steppe habitat.
- *Freshwater Wetlands* – lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. Wetlands must have one or more of the following attributes: the land supports, at least periodically, predominantly hydrophytic plants; substrate is predominantly undrained hydric soils; and/or the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year.

Habitat types were mapped using aerial imagery and field verified by qualified ESA biologists on April 26 to 28, 2023, May 16 to 18, 2023, and October 23 to 24, 2023. Following field verification, an ESA geographic information system specialist digitalized final habitat designations and created a habitat map of the Project area.

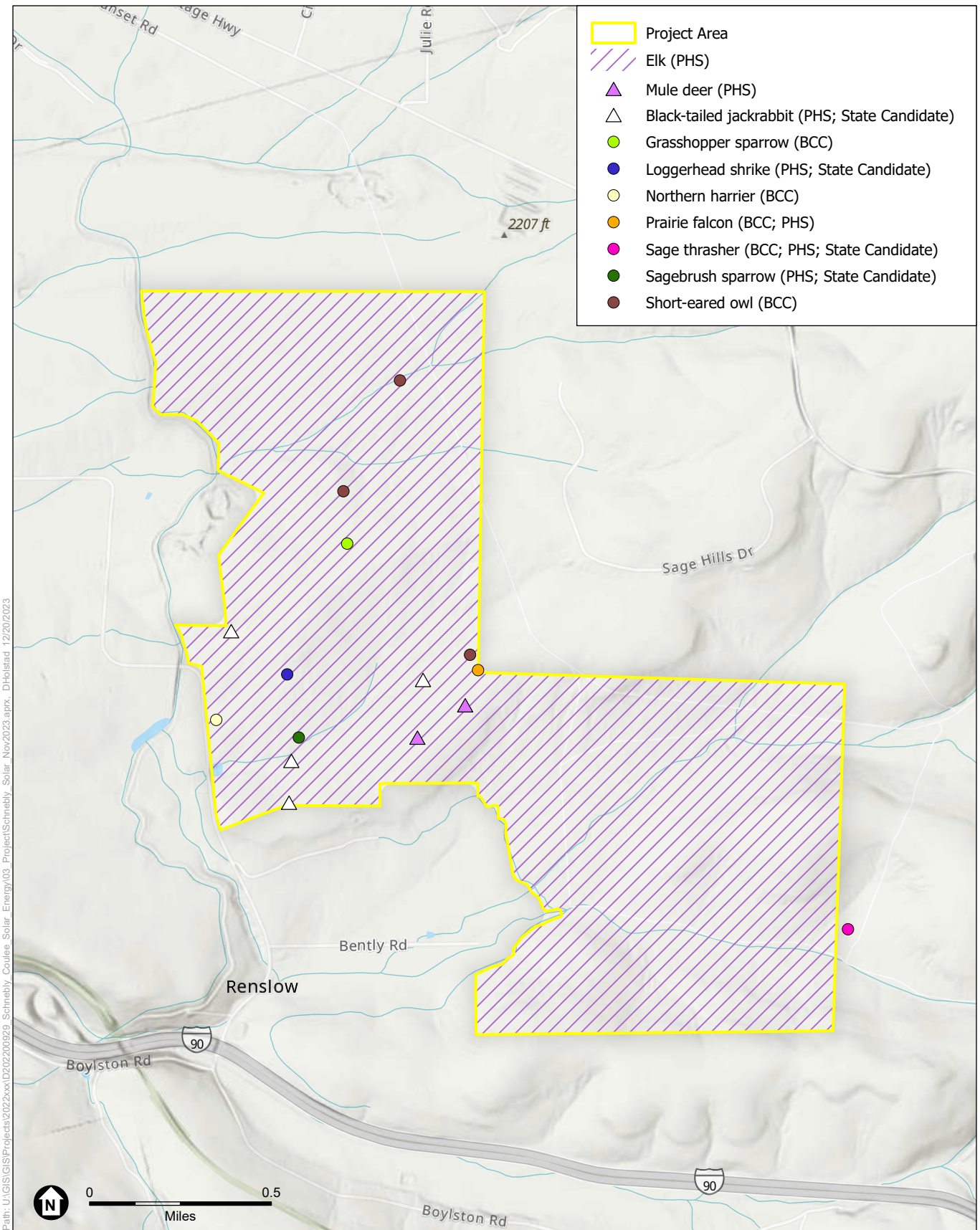
## 4.0 Results

### 4.1 Threatened, Endangered, and Sensitive Species Surveys

Thirty-four wildlife species were documented during the TESS surveys including 28 avian species, 5 mammal species, and 1 reptile (Appendix A). Of the 34 species observed, 10 state and/or federally protected species (short-eared owl [*Asio flammeus*; BCC], sage thrasher [*Oreoscoptes montanus*; BCC; PHS; State Candidate], grasshopper sparrow [*Ammodramus savannarum*; BCC], prairie falcon [*Falco mexicanus*; BCC; PHS], sagebrush sparrow [*Artemisiospiza nevadensis*; PHS; State Candidate], loggerhead shrike [*Lanius ludovicianus*; PHS; State Candidate], northern harrier [*Circus cyaneus*; BCC], elk [*Cervus canadensis*; PHS], mule deer [*Odocoileus hemionus*; PHS], and black-tailed jackrabbit [*Lepus californicus*; PHS; State Candidate]) were documented (Appendix A; **Figure 4**).

Grasshopper sparrow and sagebrush sparrow were observed only audially within the Project area. Short-eared owl observations represented either direct or sign of appropriately sized owl pellets. Sage thrasher was observed perched on a sagebrush (*Artemisia* sp.) just east of the Project area boundary and has the potential to inhabit the Project area. The remaining avian species were observed either perched or flying in the Project area. Black-tailed jackrabbit observations consisted of direct observations or presence of sign including scat, tracks, appropriately sized dens, and a skull. Elk sign was prominent throughout the entirety of the Project area and consisted

of scat, tracks, bones, and the occasional direct observation. Mule deer sign (i.e. a few piles of scat) was also observed. No evidence of Townsend ground squirrels, burrowing owls, or Pauper milkvetch was observed during the TESS surveys. Milkvetch species occur throughout the Project area but were confirmed to be Pursh's milkvetch (*A. purshii*) and Lyall's milkvetch (*A. lyallii*).



SOURCE: Basemap: Esri; TESS & Study Area: ESA.

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**Figure 4**  
Threatened, Endangered, and Sensitive Species Map

## 4.2 Raptor Nest Surveys

One raptor nest was identified within the Project area (**Table 1; Figure 5**). The nest was determined occupied and active at the time of the survey and was confirmed to be occupied by a red-tailed hawk (*Buteo jamaicensis*). No other raptor nest structures were recorded within the Project area or ½-mi Raptor Nest Study area including those that appeared in poor condition, abandoned, or unoccupied and inactive.

**TABLE 1**  
**RAPTOR NESTS OBSERVED AND DOCUMENTED WITHIN THE PROJECT AREA AND RAPTOR NEST STUDY AREAS**

Nest	Common Name	Scientific Name	Location	Status	Nest Condition	Nest Substrate
Nest 1	Red-tailed hawk	<i>Buteo jamaicensis</i>	Project area	Occupied and Active: adult and nestling present	Good	Willow tree

## 4.3 Habitat Mapping

Four habitat types were identified in the Project area and are listed below in **Table 2** and shown in **Figure 6**. The dominant habitat type in the Project area was shrubsteppe (1,072 ac) consisting of native shrub species including big sagebrush (*A. tridentata*), rabbit brush (*Ericameria nauseosa*), and bitterbrush (*Purshia tridentata*). Eastside steppe (146 ac) was present in patches throughout the Project area and consisted of native bunchgrasses including Idaho fescue (*Festuca idahoensis*), Sandberg bluegrass (*Poa sandburg*), and needle-and-thread grass (*Hesperostipa comate*) with a low density of shrubs. Disturbed land (61 ac) existed in isolated patches along the northwestern and southwestern border, and throughout the central portion of the Project area (**Figure 6**). Disturbed lands consisted of areas that were developed, cultivated, grazed, and/or dominated by non-native grasses and forbs and were predominantly comprised of bare ground and non-native weedy species including diffuse knapweed (*Centaurea diffusa*), cheatgrass (*Bromus tectorum*), Russian thistle (*Salsola tragus*), field mustard (*Brassica rapa*), and clasping pepperweed (*Lepidium perfoliatum*). Wetlands (<1 ac) were characterized in a previous Wetlands and Other Waters Delineation Report (ESA 2023) and existed along the northwestern border of the Project area. A non-native invasive plant species, cheatgrass was present throughout the Project area while other weedy species were mainly confined to areas of ground disturbance present along fence-lines, double-track roads, and disturbed land habitats. Cryptogamic soil structure was present in some areas. Photographs of habitat types are included in **Appendix B**.

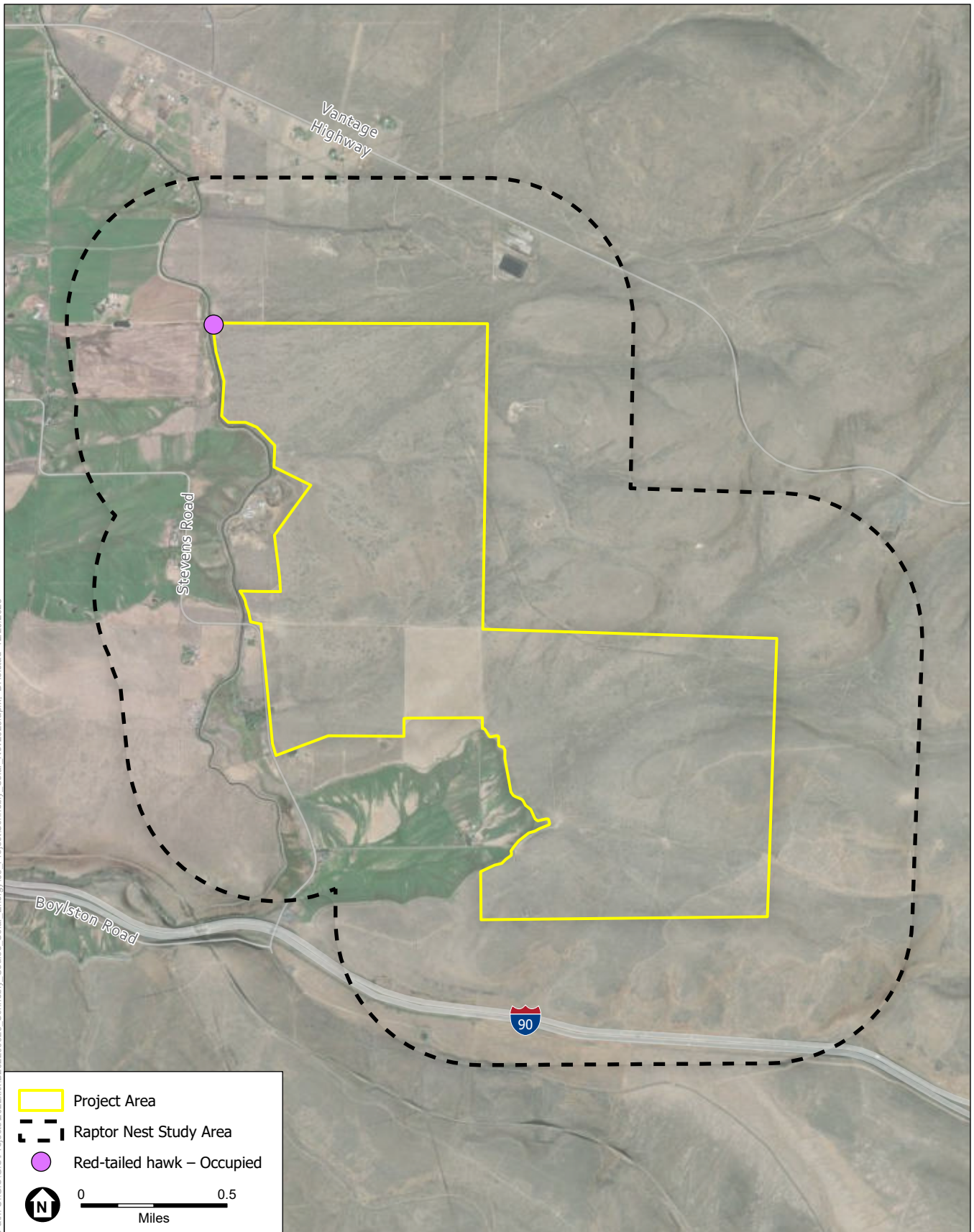


**TABLE 2**  
**HABITAT TYPES AT THE SCHNEBLY COULEE SOLAR ENERGY PROJECT, KITTITAS COUNTY, WASHINGTON**

Habitat Type	Area (acres)	Percent Composition
Shrubsteppe	1072	84
Eastside steppe	146	11
Disturbed	61	5
Wetland	<1	<1
<b>Total*</b>	<b>1,280</b>	<b>100</b>

NOTE:

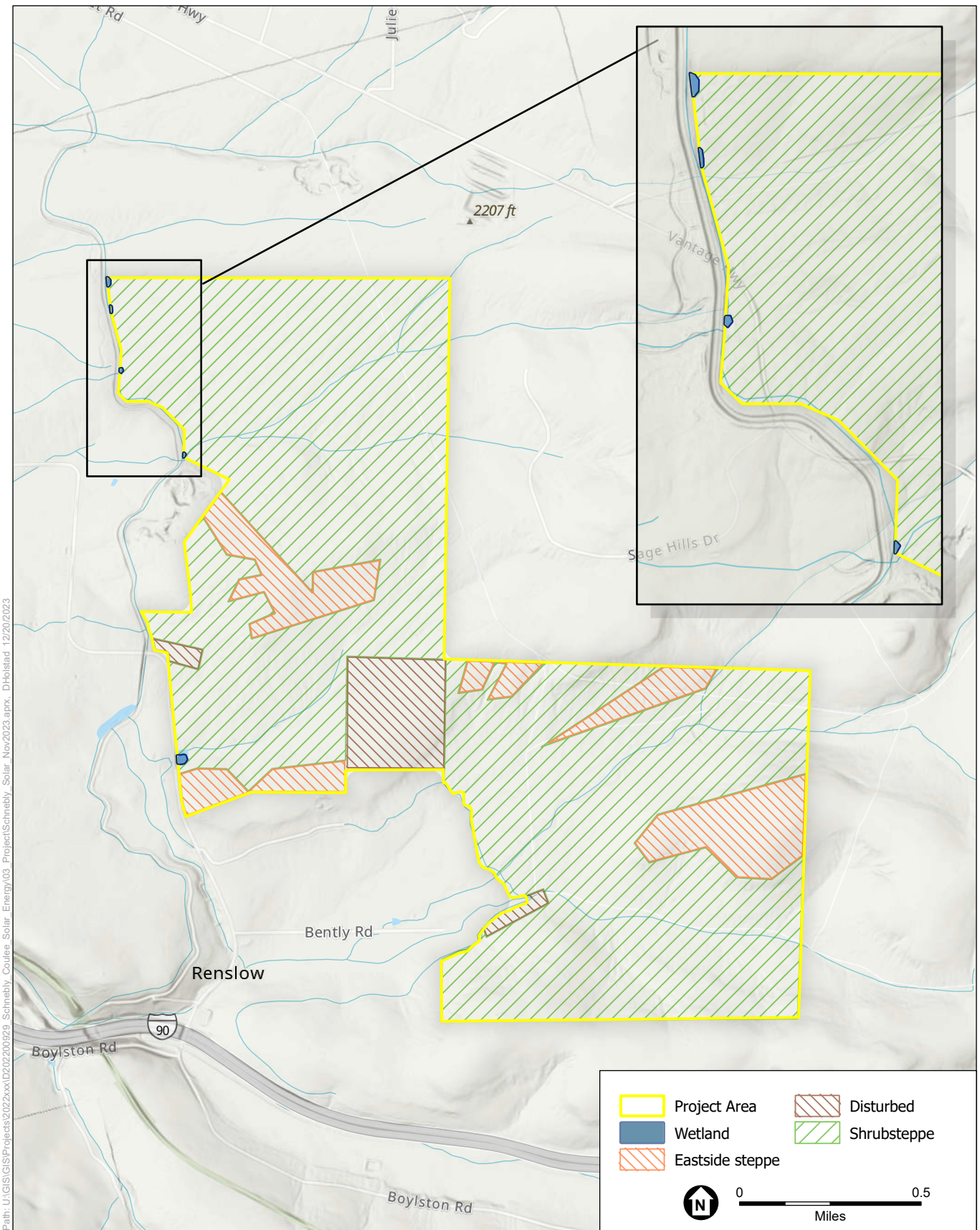
\* Sums can differ from values shown due to rounding



SOURCE: Imagery: Maxar, 2019; Raptor Nest & Study Area: ESA.

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**Figure 5**  
Raptor Nesting Map



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SOURCE: Basemap: Esri; Habitats & Study Area: ESA.

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**Figure 6**  
Habitats Map



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Appendix A  
**Wildlife Species Observed in  
the Schnebly Coulee Solar  
Energy LLC Project Area**



Scientific Name	Common Name	Protection Status
<b>AVIAN</b>		
<i>Agelaius phoeniceus</i>	red-winged blackbird	None
<i>Ammodramus savannarum</i>	grasshopper sparrow	BCC
<i>Artemisiospiza nevadensis</i>	sagebrush sparrow	State Candidate; PHS
<i>Asio flammeus</i>	short-eared owl	BCC
<i>Buteo jamaicensis</i>	red-tailed hawk	None
<i>Callipepla californica</i>	California quail	None
<i>Cathartes aura</i>	turkey vulture	None
<i>Charadrius vociferus</i>	killdeer	None
<i>Circus hudsonius</i>	northern harrier	PHS
<i>Corvus corax</i>	common raven	None
<i>Eremophila alpestris</i>	horned lark	None
<i>Falco columbarius</i>	merlin	None
<i>Falco mexicanus</i>	prairie falcon	PHS; BCC
<i>Falco sparverius</i>	American kestrel	None
<i>Gallinago delicata</i>	Wilson's snipe	None
<i>Lanius ludovicianus</i>	loggerhead shrike	State Candidate; PHS
<i>Oreoscoptes montanus</i>	sage thrasher	State Candidate; PHS; BCC
<i>Passer domesticus</i>	house sparrow	None
<i>Petrochelidon pyrrhonota</i>	cliff swallow	None
<i>Phasianus colchicus</i>	ring-necked pheasant	None
<i>Pica hudsonia</i>	black-billed magpie	None
<i>Pooecetes gramineus</i>	vesper sparrow	None
<i>Sialia currucoides</i>	mountain bluebird	None
<i>Spizella breweri</i>	Brewer's sparrow	None
<i>Sturnella neglecta</i>	western meadowlark	None
<i>Turdus migratorius</i>	American robin	None
<i>Zenaida macroura</i>	mourning dove	None
<i>Zonotrichia leucophrys</i>	white-crowned sparrow	None
<b>MAMMALS</b>		
<i>Canis latrans</i>	coyote	None
<i>Cervus elaphus</i>	elk	PHS
<i>Geomys</i> sp.	pocket gopher sp.	None
<i>Lepus californicus</i>	black-tailed jackrabbit	State Candidate; PHS
<i>Odocoileus hemionus</i>	mule deer	PHS
<i>Sylvilagus</i> sp.	cottontail	None
<b>REPTILES</b>		
<i>Phrynosoma douglasii</i>	pygmy short-horned lizard	None

# Appendix B

## Photo Log





<b>Photo: 1</b>	<b>Looking: West</b>	<b>Notes: Shrubsteppe Habitat (Eastern Project Area)</b>
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<b>Photo: 2</b>	<b>Looking: West</b>	<b>Notes: Eastside Steppe Habitat (Eastern Project Area)</b>
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<b>Photo: 3</b>	<b>Looking: North</b>	<b>Notes: Shrubsteppe Habitat (Western Project Area – Northern Portion)</b>
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<b>Photo: 4</b>	<b>Looking: Northwest</b>	<b>Notes: Eastside Steppe Habitat (Western Project Area – Central Portion)</b>
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**Photo: 5**

**Looking: East**

**Notes: Wetland Habitat (Western Project Area – Northwestern Boundary)**



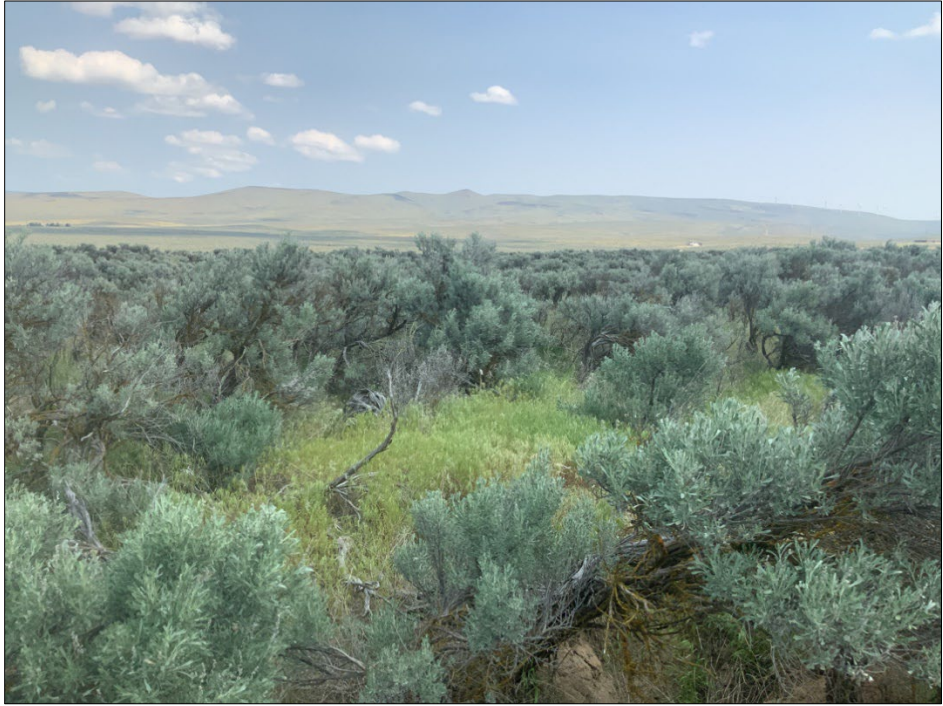
**Photo: 6**

**Looking: North**

**Notes: Shrubsteppe Habitat (Western Project Area – Southern Portion)**



<b>Photo: 7</b>	<b>Looking: East</b>	<b>Notes: Shrubsteppe Habitat (Western Project Area – Central Portion)</b>
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<b>Photo: 8</b>	<b>Looking: Northwest</b>	<b>Notes: Eastside Steppe Habitat (Eastern Project Area – Central Eastern Portion)</b>
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<b>Photo: 9</b>	<b>Looking: South</b>	<b>Notes: Central Project Area - Central Portion</b>
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<b>Photo: 10</b>	<b>Looking: Northwest</b>	<b>Notes: Central Project Area - Central Portion</b>
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**Photo: 11**

**Looking: East**

**Notes: Central Project Area - Northern Portion**



**Photo: 12**

**Looking: West**

**Notes: Central Project Area - Northern Portion**



**Photo: 13**

**Looking: Northwest**

**Notes: Southern Project Area – Western  
Border**

