Biological Resources Technical Report

Cressey-Gallo 115 kV Power Line Project
Merced County, California

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1. Introduction

This report documents existing biological resources on Pacific Gas & Electric Company's (PG&E's) route for the Cressey-Gallo 115 kilovolt (kV) Power Line Project in Merced County, California. The project includes constructing approximately 15 miles of single circuit 115 kV line. The project area described in the Proponent's Environmental Assessment (PEA) consists of the area within one-quarter mile on either side of the project route. For the purposes of this analysis, review of biological resources included a database search of a 5- mile buffer from the project route and focused surveys on a reduced study area. The 1,051-acre study area includes a 600-foot-wide survey buffer and analysis of a 120-foot-wide corridor of potential ground disturbance (Figure 1, Maps 1-25; all figures located at the end of this report). In addition to the 1,051-acre corridor, the study area also includes 111 acres of potential staging areas, for a total of 1,162 acres. This report has been prepared to document the reconnaissance-level field investigation conducted for the California Environmental Quality Act (CEQA) review of the proposed development project.

The project is located in the northern central area of Merced County, in the vicinity of the City of Livingston. The 15-mile power line extends between Cressey Substation, 0.73 mile south of the Merced River, and Gallo Substation, 0.26 mile south of the river (Figure 2). Seven potential staging areas have been identified along the 15-mile power line (Figure 3).

The following sections describe existing biotic communities and discuss sensitive habitats and special-status wildlife and plant species with potential to occur in the study area.

2. Methods

Reconnaissance-level Field Surveys of the Proposed 15-mile Power Line Corridor

Biological resources in the study area were characterized by reviewing existing information and conducting reconnaissance-level field surveys of botanical, wetlands, and wildlife resources. Reconnaissance-level surveys were conducted along the 120-foot-wide study area corridor by Garcia and Associates (GANDA) wildlife biologist Loni Cooper, botanist Ann Howald, and wetland ecologist Molly Graber on April 4-5, 2011. The purpose of these surveys was to identify and map potential habitat for special-status species and to field-verify the mapped vegetation types and wetland features that were based on remote Geographic Information System (GIS) sensing techniques. Vegetation and habitat types within the 600-foot corridor were also field-verified during the reconnaissance-level surveys.

On August 29, 2011, a survey of botanical resources within 50 feet of Cressey Substation was conducted by CH2M HILL senior biologist Marjorie Eisert. A follow-up biological survey for elderberry (*Sambucus mexicana*) was conducted on June 21, 2012 by CH2M HILL biologist Victor Leighton. This survey for elderberry covered an area from the southern edge of Cressey Substation at the intersection of Meadow Drive and West Lane south along West Lane to Palm Avenue and west along Palm Avenue (Figure 1, Maps 23-25). The survey included a visual survey of all elderberry shrubs on or adjacent to the corridor. Each shrub was thoroughly investigated for beetle exit holes (external evidence of beetle presence) and all elderberry stems

were tailed by diameter size class as outlined in the U.S. Fish and Wildlife Service, *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (USFWS 1999).

On November 2, 2012, CH2M HILL biologist Victor Leighton conducted reconnaissance-level field surveys of six of the potential staging areas (Figure 3, Maps 2-8). The purpose of these surveys was to field-verify the mapped vegetation types. The seventh potential staging area, located just south of Gallo Substation (Figure 3, Map 1), had been surveyed and field verified during the April 4-5, 2011, reconnaissance-level field surveys.

Desktop Review

GANDA reviewed biological database and literature sources concerning the habitats, geographic ranges and documented occurrences of sensitive plant and wildlife taxa in the vicinity of the study area. Information sources included, but were not limited to, the following:

- California Department of Fish and Game (CDFG) RareFind 3.1.0 Natural Diversity Database (CNDDB) (CDFG 2011a);
- U.S. Fish and Wildlife Service (USFWS) species list website (USFWS 2011)
- California Wildlife Habitat Relationships System (CWHR) (CDFG 2008) and Special Animals List (CDFG 2011b);
- California Native Plant Society (CNPS) online version of the Inventory of Rare and Endangered Plants of California (CNPS 2010); species designated as List 4 by the CNPS were also considered;
- CNDDB Quickviewer online database (CDFG 2010); and
- Jepson Online Interchange (2010).

The CNDDB database search for special-status plants included a total of 24 quadrangles generally surrounding the project route. Additional quadrangles to the north and south of those immediately surrounding the project route were included as these areas may support similar habitats and elevations. The following U.S. Geological Survey (USGS) quadrangles were included in the database search: Arena, Atwater, Ceres, Cooperstown, Cressey, Delta Ranch, Denair, Gustine, Hatch, Ingomar, Los Banos, Montpelier, Paulsell, Riverbank, Sandy Mush, San Luis Ranch, Santa Rita Bridge, Stevinson, Turlock, Turlock Lake, Turner Ranch, Volta, Waterford and Winton. The CNPS (2010) Inventory was then queried to produce a list of special-status plants for Merced County.

A list of special-status wildlife with potential to occur in the project area was compiled by performing a 16-quadrangle CNDDB search and reviewing the USFWS species list for Merced County. The CNDDB search included the following USGS quadrangles: Arena, Atwater, Ceres, Cressey, Denair, Gustine, Hatch, Ingomar, Montpelier, Sandy Mush, San Luis Ranch, Stevinson, Turlock, Turlock Lake, Turner Ranch, and Winton. Other literature reviewed on wildlife distribution in the project region included the PG&E Draft Environmental Impact Report (EIR) for the San Joaquin Valley Operations and Maintenance Program Habitat Conservation Plan (PG&E 2006), Draft EIR for the City of Merced Wastewater Treatment Plant Expansion Project (City of Merced 2006), Wildlife and Rare Plant Ecology of Eastern Merced County's Vernal Pool Grasslands (Vollmar 2002), and Eastern Merced County Natural Community Conservation Plan Habitat Conservation Plan (Noss et al. 2002).

A desktop review of biological resources potentially occurring in the vicinity of the seven potential staging areas was conducted in September 2012 by updating the queries of the USFWS database (USFWS 2012) and CNDDB (CDFG 2012) for the Arena, Atwater, Ceres, Cressey, Denair, Gustine, Hatch, Ingomar, Montpelier, Sandy Mush, San Luis Ranch, Stevinson, Turlock, Turlock Lake, Turner Ranch, and Winton quadrangles. Google maps, Google street view and photos taken from the April 4-5, 2011, reconnaissance-level field review were reviewed to identify botanical, wetland, and wildlife resources within the potential staging areas.

The 2012 CNDDB query only resulted in one new CNDDB occurrence when compared to the CNDDB search conducted in 2011. The occurrence was for a Swainson's hawk (nest) located more than 2.5 miles from the project corridor and potential staging areas.

3. Vegetation and Other Landcover Types

Seven vegetation types were identified within the study area. The total acreage for each vegetation and landcover type includes a total of 1,162 acres of the study area that was classified and verified by reconnaissance-level field surveys (Table 1). Most of the vegetation types identified and verified during the reconnaissance-level field surveys are some form of agricultural land, including: pastureland, orchard, vineyard, and other croplands. Natural vegetation is limited to very low quality annual grassland. All seven of the potential staging areas vegetation and landcover was identified to be other cropland. Other landcover types include: developed/landscaped areas, irrigation canals and ditches, and bare ground. Annual grassland is the only type included in the classification system of Holland (1986). The very low quality annual grassland within the study area is not included within the alliance-based system described in *A Manual of California Vegetation* (Sawyer et al. 2009). The acreage of each type is shown in Figure 1 and summarized in Table 1. Descriptions of all vegetation and other landcover types are provided below.

Table 1. Extent of vegetation and other landcover types within the study area*.	
Vegetation Type	**Approximate Area (acres)**
Vegetation Types	
Annual Grassland	3.1
Pastureland	67.1
Orchard	377.7
Vineyard	127.7
Other cropland	359.9
Planted trees	10.9
Ruderal	70.6
Other Landcover Types	
Developed/Landscaped	126.7
Irrigation canal	5.4
Ditch	0.7
Bare ground	12.3
Total	**1,162.1**

Annual Grassland (Non-native)

Annual grassland (Holland 1986) is described as an upland community type composed of dense to sparse cover of mainly introduced annual grasses, usually less than 3 feet in height. The very low quality annual grassland observed within the study area is ungrazed, which separates it from the type described here as pastureland. The approximately 3.1 acres of annual grassland within the study area are dominated by non-native grasses such as wild oats (*Avena* spp.), and ripgut brome (*Bromus diandrus*). No native grasses were observed. Introduced forbs were abundant, including: wild radish (*Raphanus sativus*), jointed charlock (*Raphanus raphanistrum*), common mustard (*Brassica rapa*) and white-stemmed filaree (*Erodium moschatum*). Native fiddleneck (*Amsinckia* sp.) occurs in low abundance.

Pastureland

Grazed pastureland covers approximately 67.1 acres within the study area, mainly in the eastern third of the proposed route. This vegetation consists mainly of non-native grasses and forbs. The grasses were largely unidentifiable to species due to grazing, but include foxtail barley (*Hordeum murinum* ssp. *leporinum*), annual fescue (*Vulpia* spp.) and mannagrass (*Glyceria* sp.). Other non-native plants include: common mustard, mallow (*Malva* sp.), white-stemmed filaree, curly dock (*Rumex crispus*), spikerush (*Eleocharis* sp.), and prickle-seed buttercup (*Ranunculus muricatus*).

Within the pasturelands are scattered small areas tentatively identified as seasonal wetlands. These are described in more detail in the wetlands section of the report.

Orchard

Orchards are a dominant vegetation type in the eastern and central parts of the study area (approximately 377.7 acres). Almost all of these are almond (*Prunus amygdalus*) orchards. There are also a few walnut (*Juglans cf. regia*) orchards. The understory is barren to very sparsely vegetated. Low-growing, shade-tolerant, non-native forbs are the predominant plants, including: wartcress (*Coronopus didymus*), pygmy weed (*Crassula* sp.), white-stemmed filaree, and knotweed (*Polygonum arenastrum*).

Vineyard

Extensive vineyards of wine grapes (*Vitus* spp.) occur in the western third of the study area. They cover approximately 127.7 acres. The understory is barren or contains annual grasses, likely planted for erosion control. These were present only in vegetative form and could not be identified to species.

Other cropland

Croplands planted with wheat, row crops, and fallow cropland are included in this category. One seasonally wet depression was observed within a field of planted wheat. Plants within this depression included spurrey (*Spergula arvensis*), common groundsel (*Senecio vulgaris*), and red maids (*Calandrinia ciliata*). The seven potential staging areas were all identified to be other cropland.

Planted trees

Rows of planted trees were observed along the roadsides and adjacent to the vineyards in the western part of the study area, especially along Magnolia Avenue. Planted trees included: cork oak (*Quercus suber*), coast live oak (*Quercus agrifolia*), oleander (*Nerium oleander*), Fremont cottonwood (*Populus fremontii*), almonds, plums (*Prunus domestica*), and apples (*Malus sylvestris*). Planted trees located within developed or landscaped areas are not included in this landcover category.

Ruderal

Ruderal vegetation consists of non-native weedy grasses and forbs that are typically associated with roadsides and other highly disturbed locations. Ruderal vegetation is found along most of the roadsides throughout the study area. Common species observed include: annual ryegrass (*Lolium multiflorum*), foxtail barley, wild oats, ripgut brome, soft brome (*Bromus hordeaceus*), annual bluegrass (*Poa annua*), fiddleneck, white-stemmed filaree, linaria (*Linaria canadensis*), narrow-leaved plantain (*Plantago lanceolata*), common mustard, jointed charlock, milk thistle (*Silybum marianum*), bur clover (*Medicago polymorpha*), vetch (*Vicia* sp.), and cudweed (*Gnaphalium palustre*).

In the vicinity of State Route 99, the sides of the highway corridors have been planted with a mixture of native and non-native wildflowers, including: California poppy (*Eschscholzia californica*), linaria, coreopsis (*Coreopsis* sp.), lupines (*Lupinus* sp.), and owl's clover (*Castilleja* sp.).

Developed/Landscaped

Developed and landscaped areas include rural residential areas; farm buildings, schools, and other structures; paved roads; and the associated landscaping. Landscaping associated with some of these areas includes lawns, and many kinds of planted flowers, shrubs and trees.

Irrigation canal/ditch

Irrigation canals and ditches within the study area include some with concrete or other hard structure banks, and some with dirt banks. A few of these were dry at the time of the survey, but most were filled with irrigation water. The channels and banks of most of the canals and ditches observed were unvegetated. At locations where vegetation occurred, no species of special concern were present or identifiable during the reconnaissance-level field survey.

Bare ground

Bare ground in the study area consists mainly of unpaved roads, including roads through orchards and some public rural roads.

4. Special-Status Plant Species

The list of potentially occurring special-status plant species developed for this project is in Table 2. These special-status plant species are known from specialized habitats and substrates, as indicated in Table 2. Prior to the reconnaissance-level field survey, aerial photographs were studied to identify any locations within the study area that might have substrates or habitats suitable for any of the special-status plant species in Table 2. Several locations in the vicinity of Cressey Substation were noted as possibly containing natural grasslands. All of the study area (1,162 acres, including the potential staging areas; Figure 1 and Figure 3) was examined during the reconnaissance-level field survey, and the locations near Cressey Substation were carefully evaluated. This evaluation, combined with surveys conducted throughout the study area, resulted in the identification of no natural grasslands, alkaline flats, chenopod scrub, vernal pools or any other habitat suitable for potentially occurring special-status plants in the study area. Sanford's arrowhead (*Sagittaria sanfordii*) was observed in an irrigation ditch in Merced County during surveys for the Merced to Fresno section of the High Speed Rail project (California High-Speed Rail Authority and Federal Railroad Administration 2011). Ditches and canals in the study area likely provide poor quality habitat for this species; however, no individuals of any species of *Sagittaria* were observed during the reconnaissance-level field survey. The project is not expected to have any impacts to ditches and canals on the study area. Therefore, protocol-level surveys for special-status plants are not warranted.

Special-status plant species were defined in accordance with the CEQA Guidelines, Section 15380, and the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFG 2009), and include species that are:

- Federally or State-listed, or proposed for listing, as rare, threatened or endangered (CDFG 2011a);
- Special Plant as defined by the CNDDB (CDFG 2011a); or
- Listed by the CNPS in the online version of its *Inventory of Rare and Endangered Plants of California* (CNPS 2010). Species designated as List 4 by the CNPS were also considered.

Table 2. Special-status plant species with potential to occur within the Cressey-Gallo Project vicinity.

Scientific Name	Common Name	Status[1] (Federal, State, CNPS)	Blooming Period	Communities	Elevation (ft)	Potential to Occur in the Study Area
Agrostis hendersonii	Henderson's bentgrass	List 3.2	Apr - Jun	•Valley and foothill grassland (VFGrs)(mesic) •Vernal pools (VnPls)	229 - 1,000	**No potential to occur;** no mesic natural grassland or vernal pool habitat was observed in the study area.
Astragalus tener var. *tener*	alkali milk-vetch	List 1B.2	Mar - Jun	•Playas (Plyas) •Valley and foothill grassland (VFGrs)(adobe clay) •Vernal pools (VnPls)/alkaline	3 - 197	**No potential to occur;** no alkaline clay substrates, playas, natural grasslands or alkaline vernal pools were observed in the study area.
Atriplex cordulata	heartscale	List 1B.2	Apr - Oct	•Chenopod scrub (ChScr) •Meadows and seeps (Medws) •Valley and foothill grassland (VFGrs)(sandy)/saline or alkaline	3 - 1,230	**No potential to occur;** no saline or alkaline grasslands, chenopod scrub, or meadow or seep habitat was observed in the study area.
Atriplex coronata var. *coronata*	crownscale	List 4.2	Mar - Oct	•Chenopod scrub (ChScr) •Valley and foothill grassland (VFGrs) •Vernal pools (VnPls)/alkaline, clay	3 - 1,936	**No potential to occur;** no alkaline clay substrates, chenopod scrub, natural grasslands, or vernal pool habitat was observed in the study area.
Atriplex depressa	brittlescale	List 1B.2	Apr - Oct	•Chenopod scrub (ChScr) •Meadows and seeps (Medws) •Playas (Plyas) •Valley and foothill grassland (VFGrs) •Vernal pools (VnPls)/alkaline, clay	3 - 1,050	**No potential to occur;** no alkaline clay substrates, chenopod scrub, meadow or seep habitat, natural grasslands, or vernal pools were observed in the study area.

Table 2. Special-status plant species with potential to occur within the Cressey-Gallo Project vicinity.

Scientific Name	Common Name	Status[1] (Federal, State, CNPS)	Blooming Period	Communities	Elevation (ft)	Potential to Occur in the Study Area
Atriplex joaquiniana	San Joaquin spearscale	List 1B.2	Apr - Oct	•Chenopod scrub (ChScr) •Meadows and seeps (Medws) •Playas (Plyas) •Valley and foothill grassland (VFGrs)/alkaline	3 - 2,740	**No potential to occur;** no chenopod scrub, meadow or seep habitat, playas, or alkaline natural grassland were observed in the study area.
Atriplex minuscula	lesser saltscale	List 1B.1	May - Oct	•Chenopod scrub (ChScr) •Playas (Plyas) •Valley and foothill grassland (VFGrs)/alkaline, sandy	49 - 656	**No potential to occur;** no chenopod scrub, playas, or alkaline, sandy natural grasslands were observed in the study area.
Atriplex persistens	vernal pool smallscale	List 1B.2	Jun - Oct	•Vernal pools (VnPls)(alkaline)	33 - 377	**No potential to occur;** no vernal pools were observed in the study area.
Atriplex subtilis	subtle orache	List 1B.2	Jun - Aug (Oct), Months in parentheses are uncommon.	•Valley and foothill grassland (VFGrs)	131 - 328	**No potential to occur;** no natural grasslands were observed in the study area.
California macrophylla	round-leaved filaree	List 1B.1	Mar - May	•Cismontane woodland (CmWld) •Valley and foothill grassland (VFGrs)/clay	49 - 3,937	**No potential to occur;** no clay substrates, cismontane (oak) woodland, or natural grasslands were observed in the study area.
Calycadenia hooveri	Hoover's calycadenia	List 1B.3	Jul - Sep	•Cismontane woodland (CmWld) •Valley and foothill grassland (VFGrs)/rocky	213 - 984	**No potential to occur;** no rocky substrates, cismontane woodland, or natural grasslands were observed in the study area.
Castilleja campestris ssp. *succulenta*	succulent owl's-clover	FT, SE List 1B.2	Apr - May	•Vernal pools (VnPls)(often acidic)	164 - 2,460	**No potential to occur;** no vernal pools were observed in the study area.

Table 2. Special-status plant species with potential to occur within the Cressey-Gallo Project vicinity.

Scientific Name	Common Name	Status[1] (Federal, State, CNPS)	Blooming Period	Communities	Elevation (ft)	Potential to Occur in the Study Area
Centromadia parryi ssp. *rudis*	Parry's red tarplant	List 4.2	May - October	•Valley and foothill grassland (VFGrs) •Vernal pools (VnPls)/alkaline, vernally mesic, seeps, sometimes roadsides	0 - 328	**No potential to occur;** no alkaline, vernally mesic areas, or natural grasslands or vernal pools were observed anywhere in the study area, including along roadsides.
Chamaesyce hooveri	Hoover's spurge	FT List 1B.2	Jul - Sep (Oct), Months in parentheses are uncommon.	•Vernal pools (VnPls)	82 - 820	**No potential to occur;** no vernal pools were observed in the study area.
Clarkia rostrata	beaked clarkia	List 1B.3	Apr - May	•Cismontane woodland (CmWld) •Valley and foothill grassland (VFGrs)	197 - 1,640	**No potential to occur;** no cismontane woodland or natural grassland was observed in the study area.
Cordylanthus mollis ssp. *hispidus*	hispid bird's-beak	List 1B.1	Jun - Sep	•Meadows and seeps (Medws) •Playas (Plyas) •Valley and foothill grassland (VFGrs)/alkaline	3 - 508	**No potential to occur;** no alkaline substrates, meadow or seep habitat, playas, or natural grasslands were observed in the study area.
Cryptantha hooveri	Hoover's cryptantha	List 1A	Apr - May	•Inland dunes (InDns) •Valley and foothill grassland (VFGrs)(sandy)	30 - 492	**No potential to occur;** no inland dunes or sandy natural grasslands were observed in the study area.
Cryptantha mariposae	Mariposa cryptantha	List 1B.3	Apr - Jun	•Chaparral (Chprl)(serpentinite, rocky)	656 - 2,132	**No potential to occur;** no rocky, serpentinite substrates, or chaparral vegetation was observed in the study area.
Delphinium recurvatum	recurved larkspur	List 1B.2	Mar - Jun	•Chenopod scrub (ChScr) •Cismontane woodland (CmWld) •Valley and foothill grassland (VFGrs)/alkaline	10 - 2,460	**No potential to occur;** no alkaline substrates, chenopod scrub, cismontane woodland, or natural grasslands were observed in the study area.

Table 2. Special-status plant species with potential to occur within the Cressey-Gallo Project vicinity.

Scientific Name	Common Name	Status[1] (Federal, State, CNPS)	Blooming Period	Communities	Elevation (ft)	Potential to Occur in the Study Area
Downingia pusilla	dwarf downingia	List 2.2	Mar - May	•Valley and foothill grassland (VFGrs)(mesic) •Vernal pools (VnPls)	3 - 1,492	**No potential to occur;** no mesic natural grasslands or vernal pools were observed in the study area.
Eryngium racemosum	Delta button-celery	SE List 1B.1	Jun - Oct	•Riparian scrub (RpScr)(vernally mesic clay depressions)	10 - 98	**No potential to occur;** no riparian scrub with vernally mesic clay depressions were observed in the study area.
Eryngium spinosepalum	spiny-sepaled button-celery	List 1B.2	Apr - May	•Valley and foothill grassland (VFGrs) •Vernal pools (VnPls)	262 - 836	**No potential to occur;** no natural grasslands or vernal pools were observed in the study area.
Juncus nodosus	knotted rush	List 2.3	Jul - Sep	•Meadows and seeps (Medws)(mesic) •Marshes and swamps (MshSw)(lake margins)	98 - 6,496	**No potential to occur;** no meadow or seep habitat, marshes or swamps, or lake margins were observed in the study area.
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	List 1B.1	Feb - Jun	•Marshes and swamps (MshSw)(coastal salt) •Playas (Plyas) •Vernal pools (VnPls)	3 - 3,937	**No potential to occur;** no coastal salt marshes, playas, or vernal pools were observed in the study area.
Lepidium latipes var. *heckardii*	Heckard's pepper-grass	List 1B.2	March - May	•Valley and foothill grassland (VFGrs) (alkaline flats)	0 - 656	**No potential to occur;** no alkaline flats or natural grasslands were observed in the study area.
Monardella leucocephala	Merced monardella	List 1A	May - Aug	•Valley and foothill grassland (VFGrs)(sandy, mesic)	115 - 328	**No potential to occur;** no sandy, mesic substrates, or natural grasslands were observed in the study area.

Table 2. Special-status plant species with potential to occur within the Cressey-Gallo Project vicinity.

Scientific Name	Common Name	Status[1] (Federal, State, CNPS)	Blooming Period	Communities	Elevation (ft)	Potential to Occur in the Study Area
Myosurus minimus ssp. *apus*	little mousetails	List 3.1	Mar - Jun	•Valley and foothill grassland (VFGrs) •Vernal pools (VnPls)(alkaline)	67 - 2,099	**No potential to occur;** no natural grasslands, or alkaline vernal pools were observed in the study area.
Navarretia nigelliformis ssp. *radians*	shining navarretia	List 1B.2	Apr - Jul	•Cismontane woodland (CmWld) •Valley and foothill grassland (VFGrs) •Vernal pools (VnPls)	249 - 3,281	**No potential to occur;** no cismontane woodland, natural grassland, or vernal pools were observed in the study area.
Navarretia prostrata	prostrate vernal pool navarretia	List 1B.1	Apr - Jul	•Coastal scrub (CoScr) •Meadows and seeps (Medws) •Valley and foothill grassland (VFGrs)(alkaline) •Vernal pools (VnPls)/mesic	49 - 2,296	**No potential to occur;** no coastal scrub, meadow or seep habitat, natural grasslands or vernal pools were observed in the study area.
Neostapfia colusana	Colusa grass	FT, SE List 1B.1	May - Aug	•Vernal pools (VnPls)(adobe, large)	16 - 656	**No potential to occur;** no vernal pools of any size were observed in the study area.
Orcuttia inaequalis	San Joaquin Valley Orcutt grass	FT, SE List 1B.1	Apr - Sep	•Vernal pools (VnPls)	33 - 2,477	**No potential to occur;** no vernal pools were observed in the study area.
Orcuttia pilosa	hairy Orcutt grass	FT, SE List 1B.1	May - Sep	•Vernal pools (VnPls)	151 - 656	**No potential to occur;** no vernal pools were observed in the study area.
Pseudobahia bahiifolia	Hartweg's golden sunburst	FE, SE List 1B.1	Mar - Apr	•Cismontane woodland (CmWld) •Valley and foothill grassland (VFGrs)/clay, often acidic	49 - 492	**No potential to occur;** no acidic clay substrates, cismontane woodland, or natural grasslands were observed in the study area.

Table 2. Special-status plant species with potential to occur within the Cressey-Gallo Project vicinity.

Scientific Name	Common Name	Status[1] (Federal, State, CNPS)	Blooming Period	Communities	Elevation (ft)	Potential to Occur in the Study Area
Sagittaria sanfordii	Sanford's arrowhead	List 1B.2	May - Oct	•Marshes and swamps (MshSw)(assorted shallow freshwater)	0 - 2,133	**Low potential to occur.** No individuals of any species of *Sagittaria* were observed during the reconnaissance-level field survey. However, this species has been observed in a ditch in Merced County (pers.comm. R. Huddleston 2011). The project is not expected to have any impacts to ditches and canals on the study area. Ditches and canals in the study area also likely provide poor quality habitat for this species.
Sidalcea keckii	Keck's checkerbloom	FE List 1B.1	Apr - May (Jun), Months in parentheses are uncommon.	•Cismontane woodland (CmWld) •Valley and foothill grassland (VFGrs)/serpentinite, clay	246 - 2,132	**No potential to occur;** no serpentine clay substrates, cismontane woodland, or natural grasslands observed in the study area.
Stuckenia filiformis	slender-leaved pondweed	List 2.2	May - Jul	•Marshes and swamps (MshSw)(assorted shallow freshwater)	984 - 7,054	**No potential to occur;** no marshes, swamps, or ponds observed in the study area.
Trichocoronis wrightii var. *wrightii*	Wright's tricocoronis	List 2.1	May - Sep	•Meadows and seeps (Medws) •Marshes and swamps (MshSw) •Riparian forest (RpFrs) •Vernal pools (VnPls)/alkaline	16 - 1,427	**No potential to occur;** no meadow or seep habitat, marshes or swamps, riparian forest, or vernal pools observed in the study area.
Tuctoria greenei	Greene's tuctoria	FE, SR List 1B.1	May - Jul (Sep), Months in parentheses are uncommon.	•Vernal pools (VnPls)	98 - 3,510	**No potential to occur;** no vernal pools were observed in the study area.

Table 2. Special-status plant species with potential to occur within the Cressey-Gallo Project vicinity.

Scientific Name	Common Name	Status[1] (Federal, State, CNPS)	Blooming Period	Communities	Elevation (ft)	Potential to Occur in the Study Area

Notes:

[1.] Conservation status definitions are as follows:

U.S. Fish and Wildlife Service designations:

FE Endangered: Any species in danger of extinction throughout all or a significant portion of its range.
FT Threatened: Any species likely to become endangered within the foreseeable future.

California Department of Fish and Game designations:

SE Endangered: Any species in danger of extinction throughout all or a significant portion of its range.

SR Rare: Any species not currently threatened with extinction, but in such small numbers throughout its range that it may become endangered if its present environment worsens.

ST Threatened: Any species likely to become endangered within the foreseeable future.

California Native Plant Society designations:

1A Species presumed extinct in California

1B Plants rare, threatened or endangered in California and elsewhere.

2 Plants rare, threatened or endangered in California, but more common elsewhere.

3 Plants About Which We Need More Information - A Review List

4 Plants of Limited Distribution - A Watch List

California Native Plant Society threat categories:

.1 Seriously endangered in California.

.2 Fairly endangered in California.

.3 Not very endangered in California.

5. Wildlife Habitats

The study area crosses a variety of wildlife habitat types that correspond with the diversity of vegetation types, topography and hydrologic features found in the area. The classification of wildlife habitats generally follows that used for vegetation types as described above. While vegetation types are defined by plant species composition, wildlife habitats can include other important features such as rock outcrops, underground refugia, and open water. In some cases, a wildlife habitat type includes more than one plant community where those communities provide similar habitat characteristics and support a similar assemblage of wildlife species. A description of wildlife habitats in the study area follows; these are based on the California Wildlife Habitat Relationships System (CDFG 2008).

Annual Grassland

California annual grassland can support a variety of small mammals and provide foraging or nesting habitat for raptors and other birds. Birds commonly found foraging in annual grasslands include red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), and turkey vulture (*Cathartes aura*). Common seed eaters, including California quail (*Callipepla californica*), mourning dove (*Zenaida macroura*), and western meadowlark (*Sturnella neglecta*) will nest on the ground in grasslands. Other common species, such as western scrub-jay (*Aphelocoma californica*) and northern mockingbird (*Mimus polyglottos*), will disperse through, and forage within, grassland habitats.

Common mammals of annual grasslands include California ground squirrel (*Spermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae*), field mice (*Peromyscus maniculatus*), broad-footed mole (*Scapanus latimanus*), western harvest mouse (*Reithrodontomys megalotis*), and black-tailed jackrabbit (*Lepus californicus*). These small mammals utilize open grassland for both foraging and breeding. Burrows of California ground squirrels can also provide important refuge sites for other species. Grassland wildflowers provide important nectar sources for butterflies, bees and other insects.

Pastureland

Pastures are used by a variety of wildlife depending on the geographic area and types of adjacent habitat. The pastureland within the study area is a composite of extensive pastureland located just over 1 mile southeast of the Merced River. The pastureland found in the study area provides suitable foraging and nesting habitat for some animals, especially birds. Ground nesting birds, including waterfowl, western meadowlark, and pheasant (*Phasianus colchicus*) nest in pastures if adequate residual vegetation is present during the nesting season. Flood irrigation of pastures provides feeding and roosting sites for many wetland-associated birds, including shorebirds, wading birds, gulls, waterfowl, and raptors.

Seasonal wetland features were also identified within the pastureland on the study area. Seasonal freshwater wetlands often support a unique assemblage of species that are adapted to an annual regime of inundation and desiccation. These habitats provide valuable resources for a variety of wildlife species. Species composition depends in part on the period of inundation (or hydroperiod) during the wet season. When water is present, these habitats can support many

aquatic invertebrates and provide breeding sites for amphibians such as Pacific treefrog (*Pseudacris regilla*), western toad (*Bufo boreas*), and western spadefoot (*Spea* [= *Scaphiopus*] *hammondii*). Because they are often hydrologically isolated from rivers and streams and subject to seasonal drying, fish are absent from these seasonal wetlands. Such areas provide unique habitat conditions that can be essential for locally endemic and rare species. In the winter and spring, seasonal wetlands can also provide foraging habitat for resident and migratory birds.

Agricultural (Crops/Orchard/Vineyard)

Cultivated agricultural lands include vineyards, irrigated crop fields and almond orchards found within the study area. Water features including channelized irrigation canals and irrigation ditches are associated with some of the agricultural areas within the study area. Typical species found in agricultural land include red-tailed hawk, common crow (*Corvus brachyrhynchos*), Brewer's blackbird (*Euphagus cyanocephalus*), western meadowlark, house finch (*Carpodacus mexicanus*), red-winged blackbird (*Agelaius phoeniceus*), California ground squirrel, and deer mouse (*Peromyscus maniculatus*). Disked fields typically provide foraging habitat for wildlife species such as great egret (*Ardea alba*), great-blue heron (*Ardea herodias*), northern harrier (*Circus cyaneus*), red-tailed hawk, killdeer (*Charadrius vociferous*), white-tailed kite (*Elanus leucurus*) and burrowing owl (*Athene cunicularia*).

Ruderal Vegetation and Bare Ground

Ruderal areas generally provide relatively low habitat value for wildlife because they are degraded communities dominated by non-native, weedy plants. These areas typically provide low-quality foraging habitat for most birds and small mammals, but can provide marginal habitat for some species depending on the type and amount of vegetation present. Common birds found in ruderal habitat include Brewer's blackbird, house finch, and mourning dove. The western fence lizard (Sceloporus occidentalis), a common reptile, often utilizes bare ground areas such as roadsides and railroad berms for thermal basking.

One potential seasonal wetland feature was also identified in the ruderal strip near the intersection of Mercedes Avenue and the Burlington Northern Santa Fe railroad tracks. The wetland feature appears to be manmade and the vegetation was dominated by non-native plant species (e.g. Russian thistle (*Salsola* sp.), curly dock, loosestrife (*Lythrum* sp.) and non-native grasses). Generally, seasonal freshwater wetlands often support a unique assemblage of species that are adapted to an annual regime of inundation and desiccation. When water is present, these habitats can support many aquatic invertebrates and provide breeding sites for amphibians such as Pacific treefrog.

Developed/Landscaped/Planted Trees

Developed areas, particularly areas with landscaping vegetation and planted trees, can provide moderate habitat value for wildlife. The planting and maintenance of shrubs, trees, and other ornamental plants in developed and landscaped areas can enhance this habitat for opportunistic animal species that can coexist with humans. Examples of species found in this habitat type are the northern mockingbird, house finch, Brewer's blackbird, and raccoon (*Procyon lotor*). Also, buildings and structures such as bridges, overpasses and transmission towers can provide shelter,

roosting, or nesting sites for species such as cliff swallow (*Petrochelidon pyrrhonota*), barn swallow (*Hirundo rustica*), rock dove (*Columba livia*), and small mammals such as mice, rats, and a variety of bats.

Irrigation canal/ditch

The channelized irrigation canals and ditches associated with agricultural and crop lands on the study area serve as habitats for amphibians and reptiles such as Pacific treefrog, western spadefoot, and bullfrog (*Rana catesbeiana*) as well as reptiles such as western pond turtle (*Emys marmorata*). A variety of waterbirds can also utilize these features as refuge and/or foraging sites.

6. Wetlands and Aquatic Resources

Potential wetland and water features along the study area were initially identified and mapped based on aerial photo interpretation. During the field reconnaissance-level surveys all mapped wetland and water features in the 120-foot wide corridor were verified and any new features were recorded. The potential staging areas (Figure 3) were evaluated during the November 2, 2012, reconnaissance-level field survey; no additional wetland or aquatic resources were identified within the potential staging areas. Potential wetland features were identified in the field based on the presence of hydrophytic vegetation (e.g. spikerush, Italian rye grass, curly dock, loosestrife, common rush, annual bluegrass and mannagrass) and wetland hydrology (e.g. saturated soils, surface water, cattle trampling, and soil cracks). Potential wetlands observed in the project area include irrigated pasture, seasonal wetland, agricultural ditch, irrigation canal, pooled water, and flood-irrigated cropland. Those features which were identified are represented on the maps (Figure 1). Descriptions of hydrophytic vegetation and hydrology for these features can be found in the following sections. If project activities are proposed near any of the potential wetland features then a formal wetland delineation should be conducted to identify wetland boundaries with the use of three-parameter data points, including a complete assessment of hydrophytic vegetation, wetland hydrology, and hydric soils.

Irrigated Pasture

Irrigated pasture covers approximately 0.4 acre within the study area, mainly within pastureland on the eastern side of the study area (Figure 1, Maps 24-25). These areas were void of vegetation due to dairy farm/cattle activity, but showed signs of hydrology including surface soil cracks and cattle trampling. Surrounding dominant vegetation included hydrophytic species such as Italian rye grass, and it is likely that if the cattle were held from this area for long enough, these hydrophytic species would also dominate these lower-laying areas that collect water.

Seasonal Wetland

Potential seasonal wetland features included approximately 1.6 acres within pastureland on the eastern side of the study area (Figure 1, Maps 23-25), approximately 0.1 acre at the apparently man-made feature near the intersection of Mercedes Avenue and the Burlington Northern Santa Fe railroad tracks (Figure 1, Map 22), and approximately 0.06 acre within a developed area between a house site and cropland (Figure 1, Map 9). The features on the eastern side of the

project occur within pasturelands where the dominant vegetation is hydrophytic and included species such as Italian rye grass, spikerush, curly dock, and mannagrass. There were areas of saturation present within these features as well as cattle trampling. The man-made feature near the railroad tracks is a low-lying area with hydrophytic curly dock, common rush and loosestrife among the dominant vegetation. There is a culvert adjacent to this feature. The feature within the developed area is a lower-lying area where water collects and has left surface soil cracks. The dominant hydrophytic vegetation in this area consisted of annual bluegrass.

Pooled Water

Ponded water covered approximately 0.07 acre within pastureland on the eastern side of the study area (Figure 1, Maps 23, 25). These areas had little vegetation due to cattle grazing, and were lower-lying areas that had standing water at the time of the survey. Italian rye grass was the dominant species growing in these areas.

Flood-irrigated Cropland –not considered wetland

The agricultural fields north of Magnolia Avenue and south of Arena Way (Figure 1, Map 14) have been labeled as flood-irrigated cropland. This feature consists of 15.51 acres. A local neighbor advised that this cropland has in the past been used to grow corn, among other crops, but at the time of the survey, these fields were saturated and reported to have been flooded by the nearby dairy from their lagoon (pers. comm. Judy Blevins 2011). The fields would likely support hydrophytic vegetation and develop hydric soils if flooding activities continue. This area is recommended to be reviewed if a formal wetland delineation is conducted at a future date.

7. Special-Status Wildlife Species

Special-status wildlife species were defined in accordance with the CEQA Guidelines, Section 15380, and included species that are:

- Listed, proposed for listing, or candidates for listing as threatened or endangered under the federal Endangered Species Act;
- Listed or candidates for listing as threatened or endangered under the California Endangered Species Act;
- Designated as Species of Special Concern by the CDFG;
- Listed on the CDFG "Special Animals" list (CDFG 2011b); or otherwise meet the definition of rare, threatened or endangered, as described in the CEQA Guidelines, Section 15380.

Special-status wildlife species with potential to occur in the study area or vicinity are summarized in Table 3. The study area does not pass through designated critical habitat. However, designated critical habitat is located within 5 miles the corridor (Figure 2). Critical habitat for Conservancy fairy shrimp (*Branchinecta conservatio*) and vernal pool fairy shrimp (*Branchinecta lynchi*) is present 4.6 miles south of Magnolia Blvd and 3.4 miles east of Cressey Substation. Vernal pool tadpole shrimp (*Lepidurus packardi*) is also included in the designated

Table 3. Special-status wildlife species with potential to occur within the study area.			
Common Name ***Scientific Name***	**Status[2]** **Federal/State**	**Habitat Requirements**	**Potential to Occur in the Study Area**
Invertebrates			
California linderiella[1a] *Linderiella occidentalis*	– / SA	Vernal pools and other seasonal wetlands.	**Low potential to occur.** Suitable aquatic habitat is present in the study area south of Cressey Substation in the pastureland. However, all of the seasonal wetland features are located in pastureland that shows signs of continual disking. The topography has been significantly altered by agricultural and grazing practices. No vernal pool habitat found in the study area.
Conservancy fairy shrimp[1a] *Branchinecta conservatio*	FE / SA	Large turbid vernal pools and other seasonal wetlands. Within vernal pool complex, conservancy shrimp are sporadic in their distribution, often inhabiting one or a few pools within a widespread complex.	**Low potential to occur.** Suitable aquatic habitat is present in the study area south of Cressey Substation in the pastureland. However, all of the seasonal wetland features are located in pastureland that shows signs of continual disking. The topography has been significantly altered by agricultural and grazing practices. No vernal pool habitat found in the study area.
Longhorn fairy shrimp[1a] *Branchinecta longiantenna*	FE / SA	Small, clear-water depressions in sandstone and clear-to-turbid clay /grass-bottomed vernal pools and shallow swales.	**No potential to occur**. No suitable aquatic habitat is present in the study area; all seasonal wetland features are located in disked pastures that are heavily grazed by dairy farms. No vernal pool habitat found in the study area.
Midvalley fairy shrimp[1a] *Branchinecta mesovallensis*	– / SA	Shallow vernal pools, vernal swales and various artificial ephemeral wetland habitats.	**Low potential to occur.** Suitable aquatic habitat is present in the study area south of Cressey Substation in the pastureland. However, all of the seasonal wetland features are located in pastureland that shows signs of continual disking. The topography has been significantly altered by agricultural and grazing practices. No vernal pool habitat found in the study area.

Table 3. Special-status wildlife species with potential to occur within the study area.			
Common Name ***Scientific Name***	**Status[2] Federal/State**	**Habitat Requirements**	**Potential to Occur in the Study Area**
Molestan blister beetle[1a] *Lytta molesta*	– / SA	No published information on habitat or floral visitation records.	**Low potential to occur.** Based on habitat information from meloid beetle species (species typically found on flowers) there is little suitable habitat present for this species. The only significant area where wild flowers were observed present in the study area was along Hwy 99 were wild flower seed mixes had been planted.
Valley elderberry longhorn beetle[1a] *Desmocerus californicus dimorphus*	FT / SA	Host larval plant is the elderberry; found primarily in riparian areas. Adult beetles lay eggs in elderberry 2-8 inches in diameter with some preference showed toward "stressed" elderberry bushes.	**Moderate-high potential to occur.** Elderberry (*Sambucus* sp.) present on West Lane, south of Cressey Substation.
Vernal pool fairy shrimp[1a] *Branchinecta lynchi*	FT / SA	Small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools. Prefer cool water pools with sporadic distribution through vernal pool complex.	**No potential to occur.** No suitable aquatic habitat is present in the study area; all seasonal wetland features are located in disked pastures that are heavily grazed by dairy farms. No vernal pool habitat found in the study area.
Vernal pool tadpole shrimp[1a] *Lepidurus packardi*	FE / SA	Vernal pools and swales containing clear to highly turbid water. Pools commonly found in grass-bottomed swales of unplowed grasslands. Some pools are mud-bottomed & highly turbid.	**Low potential to occur**. Suitable aquatic habitat is present in the study area south of Cressey Substation in the pastureland. However, all of the seasonal wetland features are located in pastureland that shows signs of continual disking. The topography has been significantly altered by agricultural and grazing practices. No vernal pool habitat found in the study area.
Fish			
Chinook salmon[1b,1e] Central Valley fall/late fall run ESU Central Valley spring run ESU *Oncohynchus tshawytscha*	– / SSC FT / ST	Can occur in all major tributaries of the San Joaquin River depending on water levels. Spawns in lowland reaches of San Joaquin river tributaries.	**No potential to occur**. No suitable aquatic habitat is present in the study area; all canals that flow into the Merced River have gates present.
Hardhead[1a] *Mylopharodon conocephalus*	– / SSC	Undisturbed areas of larger middle and low elevation streams, found in association with Sacramento suckers.	**No potential to occur**. No suitable aquatic habitat is present in the study area; all canals that flow into the Merced River have gates present.

Table 3. Special-status wildlife species with potential to occur within the study area.			
Common Name ***Scientific Name***	**Status[2]** **Federal/State**	**Habitat Requirements**	**Potential to Occur in the Study Area**
Kern brook lamprey[1e] *Lampetra hubbsi*	– / SSC	Endemic to the east side of the San Joaquin Valley and are primarily associated with silt backwaters of rives. Ammocoetes are usually in shallow pools and along edges of runs.	**No potential to occur**. No suitable aquatic habitat is present in the study area; all canals that flow into the Merced River have gates present.
Sacramento perch[1e] *Archoplites interruptus*	– / SSC	Historically found in the sloughs, slow-moving rivers, and lakes of the Central Valley.	**No potential to occur**. No suitable aquatic habitat is present in the study area; all canals that flow into the Merced River have gates present.
San Joaquin roach[1e] *Rhinichthys osculus* ssp.	– / SSC	Sacramento and San Joaquin River drainages, as well as tributaries to San Francisco Bay. Generally found in small warm streams and isolated pools of intermittent streams.	**No potential to occur**. No suitable aquatic habitat is present in the study area; all canals that flow into the Merced River have gates present.
Steelhead-Central Valley DPS [1e, 1f] *Oncorhynchus mykiss irideus*	FT / SA	Freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation and larval development. Natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks.	**No potential to occur**. No suitable aquatic habitat is present in the study area; all canals that flow into the Merced River have gates present.
Amphibians			
California red-legged frog[1b, 1e] *Rana draytonii*	FT / SSC	Breeds in ponds and pools in slow-moving streams with emergent vegetation; adjacent upland habitats are often used for temporary refuges or dispersal movements.	**No potential to occur**. No suitable aquatic habitat is present in the study area. Species was historically present in Merced County, but has since been extirpated from the region (Fisher and Shaffer 1996, Jennings 1996).
California tiger salamander[1a] *Ambystoma californiense*	FT / ST	Vernal pools and/or seasonal water sources; requires underground refuges in adjacent upland areas, especially ground squirrel burrows.	**Low potential to occur**. Seasonal wetlands found in the agricultural pasture land in the south of Cressey Substation are not suitable for breeding. The larval stage of the California tiger salamander usually lasts three to six months (Petranka 1998). During our site visit in March, none of the seasonal wetlands were full, although 2010 has been a relatively wet year, thus indicating that none of these features hold water for more than a month.

Table 3. Special-status wildlife species with potential to occur within the study area.			
Common Name ***Scientific Name***	**Status[2] Federal/State**	**Habitat Requirements**	**Potential to Occur in the Study Area**
Foothill yellow-legged frog[1e] *Rana boylii*	– / SSC	Partly-shaded, shallow streams & riffles with a rocky substrate in a variety of habitats.	**No potential to occur**. No suitable aquatic habitat is present in the study area.
Western spadefoot[1a] *Spea hammondii*	– / SSC	Occurs primarily in open grassland habitats, but can be found in valley-foothill hardwood woodlands. Prefers open areas with sandy or gravel laden soils. Vernal pools or rain-pools and/or ponds that do not contain bullfrogs, fish or crayfish are essential for breeding and egg-laying.	**Moderate potential to occur**. Suitable aquatic breeding habitat present in the pastures south of Cressey Substation.
Reptiles			
Blunt-nosed leopard lizard[1b,1e] *Gambelia sila*	FE / SE & FP	Semiarid grasslands, alkali flats, and washes. Prefers flat areas with open spaces with sparse vegetation.	**No potential to occur**. No habitat present in the study area.
Coast (California) horned lizard[1a] *Phrynosoma blainvillii*	– / SSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Found in open areas with adjacent bushes for cover, patches of loose soil for burial, and an abundant supply of ants and other insects.	**Moderate potential to occur**. Marginal habitat present through out the study area. Sandy soils and harvester ants were observed through out the study area, which represent the typical habitat and prey, respectively.
Giant garter snake[1a] *Thamnophis gigas*	FT / ST	Prefers freshwater marshes and low gradient streams. Has adapted to drainage canals and irrigation ditches. This is the most aquatic of the garter snakes in California.	**Low potential to occur**. Canals in the study area provide marginal aquatic habitat for this species; study area lacks the wetlands necessary to support this species life cycle. All CNDDB occurrences were found >10 miles SW of the study area in or adjacent to Stevinson Wildlife Reserve.
Silvery legless lizard[1a] *Anniella pulchra pulchra*	– / SSC	Found in moist, warm sandy or loose loamy soils with plant cover. Typically occurs in areas with leaf litter under trees and bushes in sunny locations.	**Low potential to occur**. Very marginal habitat present in the study area. Sandy soils and some plant cover present, however, most of the study area has been developed by agriculture and experiences frequent ground disturbing activities associated with agriculture.

Table 3. Special-status wildlife species with potential to occur within the study area.			
Common Name ***Scientific Name***	**Status[2]** **Federal/State**	**Habitat Requirements**	**Potential to Occur in the Study Area**
Western pond turtle[1a] *Emys marmorata*	– / SSC	Occurs in both permanent and seasonal waters, including marshes, streams, rivers, ponds and lakes. Also found in irrigation canals and agricultural drains. They favor habitats with large amounts of emergent logs or boulders, where they aggregate to bask.	**Moderate potential to occur**. Suitable aquatic habitat found on the study area.
Birds			
Aleutian cackling goose[1a] *Branta hutchinsii leucopareia*	FD / SA	Winters on Central Valley agricultural fields and wildlife refuges; feeds on waste grain before leaving for Humboldt and Del Norte Counties in mid-January.	**Low potential to occur**. Marginal winter habitat present in pasture land south of Cressey Substation. Species does not nest in Merced County.
Bald eagle[1a] Haliaeetus leucocephalus	BGEPA, FP / SE	Prefers habitats near rivers, lakes and other large bodies of open water with an abundance of fish.	**No potential to occur**. No suitable nesting or foraging habitat present in the study area.
Bank swallow[1b, 1f] *Riparia riparia*	– / ST	Colonial nester. Nests primarily in riparian and other lowland habitats west of the desert. Nest colonies are located in vertical banks of sand or dirt along river banks, lake shores, road cuts or similar sites.	**Low potential to occur**. No suitable nesting habitat in the study area; none of the irrigation canals in the study area contained sufficient bank size and/or substrate to support a colony.
Burrowing owl[1a] *Athene cunicularia*	– / CSC	Nests in burrows (often constructed by ground squirrels) and forages in low-growing grasslands and other open, semi-arid habitats.	**Moderate potential to occur**. Suitable nesting and foraging habitat in the study area.
California yellow warbler[1b, 1e, 1f] *Dendroica petechia brewsteri*	– / SSC	Nests in a variety of habitats including woodlands and thickets along stream edges, lakes, swamps and marshes. Prefers willows, cottonwoods, aspens, sycamores, and alders for nesting and foraging.	**No potential to occur**. No suitable nesting habitat present in the study area.
Ferruginous hawk[1a] *Buteo regalis*	– / SA	Open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon-juniper habitats.	**Low potential to occur**. Marginal winter habitat present in pasture land south of Cressey Substation. Species does not nest in Merced County.
Great blue heron (rookery)[1a] *Ardea herodias*	– / SA	Variety of habitats close to bodies of water including fresh and saltwater marshes, wet meadows, lake edges and shorelines. Colonial nester in tall trees, cliff sides and sequestered spots on marshes.	**No potential to occur**. No suitable nesting habitat present in the study area.

Table 3. Special-status wildlife species with potential to occur within the study area.			
Common Name ***Scientific Name***	**Status[2]** **Federal/State**	**Habitat Requirements**	**Potential to Occur in the Study Area**
Great egret (rookery) [1a] *Ardea alba*	– / SA	Colonial nester in large trees along the margins of rivers, lakes, wetlands, irrigated pastures and tidal flats.	**No potential to occur**. No suitable nesting habitat present in the study area.
Least Bell's vireo[1e] *Vireo bellii pusillus*	FE / SE	Summer resident of southern California, found in low riparian habitats near water or in dry river bottoms; below 2,000 ft. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, Baccharis or mesquite. Requires dense shrub layer (2 -10 ft above ground) for nesting habitat.	**No potential to occur**. No suitable nesting habitat present in the study area.
Loggerhead shrike[1e] *Lanius ludovicianus*	– / SSC	Found in a wide variety of habitats including woodlands, savannah, pinyon-juniper, Joshua tree, riparian woodlands, desert oases, scrub and washes. Prefers open habitat for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	**Moderate potential to occur**. Suitable nesting found in the study area (e.g. planted trees). Suitable foraging habitat in the study area.
Mountain plover[1a] *Charadrius montanus*	PT / SSC	Short grasslands, freshly plowed fields, newly sprouting grain fields, and sometimes sod farms. Prefers short vegetation, bare ground with flat topography and grazed areas with burrowing rodents.	**Moderate potential to occur**. Suitable winter foraging habitat in the study area.
Northern harrier[1a] *Circus cyaneus*	– / SSC	Wet and dry open country such as marshes and grasslands with good ground cover. Nests on the ground.	**Low potential to occur**. No suitable nesting habitat present in the study area.
Peregrine falcon[1e] *Falco peregrinus anatum*	FD / SD & FP	Found in a variety of habitats with cliffs for nesting and open areas for foraging.	**No potential to occur**. No suitable nesting habitat present in the study area.
Purple martin[1e,1f] *Progne subis*	– / SSC	Found in a variety of habitats near human settlements where nest houses are provided, especially near water and large open areas. Also in saguaro cactus, and in western montane forests around beaver ponds.	**Low potential to occur**. No suitable nesting habitat found on the study area. Suitable foraging habitat present.

Table 3. Special-status wildlife species with potential to occur within the study area.			
Common Name ***Scientific Name***	**Status[2] Federal/State**	**Habitat Requirements**	**Potential to Occur in the Study Area**
Suisun song sparrow[1a] *Melospiza melodia maxillaris*	– / SSC	Resident of brackish-water marshes surrounding Suisun Bay. Inhabits cattails, tules and other sedges: also known to frequent tangles bordering sloughs. Only one historic occurrence for this species from collections made in 1915 from "Modesto".	**No potential to occur**. No suitable nesting habitat present in the study area.
Swainson's hawk[1a] *Buteo swainsoni*	– / ST	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	**Present**. Adult observed flying over the study area (Figure 1, Map 16). Suitable nesting habitat present within study area.
Tricolored blackbird[1a] *Agelaius tricolor*	– / SSC	Highly colonial species that typically nests in freshwater marshes containing emergent vegetation such as cattails and tules, but will also use blackberry thickets and dense patches of ruderal vegetation such as thistles and mustard adjacent to marshes or wetlands.	**No potential to occur**. No suitable nesting habitat present in the study area. Marshes with high, emergent vegetation or was not found in study area. The ruderal areas containing mustard lacked any associated wetlands or marsh habitat that is necessary for this species.
Western least bittern[1e] *Ixobrychus exilis*	– / SSC	Freshwater or brackish marshes with tall emergent vegetation.	**No potential to occur**. No suitable nesting habitat present in the study area. The canals on the study area lacked sufficient vegetation to support nesting for this species.
Western yellow-billed cuckoo[1e] *Coccyzus americanus occidentalis*	FC / SE	Nests in riparian forests along broad, lower flood-bottoms of large river systems. Nests in riparian jungles of willow often mixed with cottonwoods, with an understory of blackberry and/or nettles.	**No potential to occur**. No suitable nesting habitat present in the study area.
White-tailed kite[1b,c,d,e,f] *Elanus leucurus*	– / FP	Nests in oak, willow or other trees and forages over open grasslands. A coast live oak tree is often chosen as a nest site.	**Present**. Observed foraging in the study area (Figure 1, Map 5). Suitable foraging habitat present through out study area; marginal nest habitat present.
Willow flycatcher[1e] *Empidonax traillii*	– / SE	Breeds in moist, shrubby areas, often with standing or running water. Winters in shrubby clearings and early successional growth.	**No potential to occur**. No suitable nesting habitat present in the study area.

Table 3. Special-status wildlife species with potential to occur within the study area.			
Common Name ***Scientific Name***	**Status[2]** **Federal/State**	**Habitat Requirements**	**Potential to Occur in the Study Area**
Yellow-breasted chat[1e,1f] *Icteria virens*	– / SSC	Dense second-growth, riparian thickets, and brush.	**No potential to occur**. No suitable nesting habitat present in the study area.
Mammals			
American badger[1a] *Taxidea taxus*	– / SSC	Prefers dry open stages of most shrub, forest, and herbaceous habitats. Requires sufficient food (mostly on burrowing rodents), friable soils and open, uncultivated ground.	**Low potential to occur**. Marginal habitat suitability present in the study area for this species. Pasture land has been recently disked and is heavily grazed by dairy cows.
Hoary bat[1a] *Lasiurus cinereus*	– / SA	Prefers open habitats or habitat mosaics with cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.	**Low potential to occur**. No suitable roosting (e.g. riparian habitat utilized for day roosts) present in the study area. Foraging habitat present in the vicinity of canals near Merced River.
Merced kangaroo rat[1a] *Dipodomys heermanni dixoni*	– / SA	Grassland and savanna communities in eastern Merced & Stanislaus counties. Needs fine, deep well-drained soil for burrowing. Granivorous, but also eats forbs and green grasses.	**Low potential to occur**. This species was found in the western part of Merced County (>13 miles from the study area) during 2001 (Laabs and Allaback 2002). No suitable habitat present in the study area. Pasture land has been recently disked and all grassland consisted of dense, high non-native grasses.
Pallid bat[1a] *Antrozous pallidus*	– / SSC	Open, dry habitats such as grasslands, shrublands, and woodlands with rocky areas for roosting. Roosts in anthropogenic structures (buildings and bridges), cliff crevices of rock faces, and hollow trees.	**Low potential to occur**. Suitable day roosting habitat not present in the study area. Typical colony size is 50-300 individuals (Pierson and Rainey 2002); buildings/bridges in the vicinity of the study area were not suitable for pallid bat colonies.
San Joaquin kit fox[1a] *Vulpes macrotis mutica*	FE / ST	Annual grassland or grassy open stages with scattered shrubby vegetation. Need loose-textured sandy soils for burrowing and suitable prey base.	**Low potential to occur**. Marginal habitat suitability present in the study area for this species. Pasture land has been recently disked and is heavily grazed by dairy cows. All grassland consisted of dense, high non-native grasses.

Table 3. Special-status wildlife species with potential to occur within the study area.			
Common Name ***Scientific Name***	**Status[2]** **Federal/State**	**Habitat Requirements**	**Potential to Occur in the Study Area**
Townsend's big-eared bat[1c,1e] *Corynorhinus townsendii*	– / SSC	Found throughout California in a wide variety of habitats; most commonly associated with mesic sites. Generally solitary or in small groups, but females form larger maternity colonies in the summer. Roosts in the open, hanging from walls and ceilings of caves, mines or abandoned structures in or near woodlands and forests. Extremely sensitive to human disturbance.	**Low potential to occur**. No suitable roosting habitat present in the study area.
Western mastiff bat[1a] *Eumops perotis californicus*	– / SSC	Found in open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, and chaparral. Roosts in crevices in cliff faces, high buildings, trees and/or tunnels.	**Low potential to occur**. No suitable roosting habitat present in the study area. Typical colony size is 30-300 individuals (Pierson and Rainey 2002); buildings/bridges in the vicinity of the study area were not suitable for western mastiff bat colonies.
Western red bat[1a] *Lasiurus blossevillii*	– / SSC	Widely distributed throughout California. Roosts primarily in trees, 2-40 ft high. Roosting habitat includes forests and woodlands from sea level up through mixed conifer forests. Forages over a wide variety of habitats including grasslands, open woodlands and forests, and croplands. Generally prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.	**Moderate potential to occur**. Marginal roosting habitat (e.g. fruit orchard) present in the study area. Foraging habitat present in the vicinity of canals near Merced River.
Yuma myotis[1a] *Myotis yumanensis*	– / SA	Found in a variety of habitats, ranging from desert areas near open water to juniper and riparian woodlands. Optimal habitat is open forest and woodlands with water sources. Forages over open water. Roosts in large groups in caves, buildings, crevices, mines and under bridges.	**Low potential to occur**. No suitable roosting habitat present in the study area. Foraging habitat present in the vicinity of canals near Merced River.

Table 3. Special-status wildlife species with potential to occur within the study area.

Common Name *Scientific Name*	Status[2] Federal/State	Habitat Requirements	Potential to Occur in the Study Area

Notes:

DPS = distinct population segment; ESU = evolutionarily significant unit

[1.] Sources

1a California Natural Diversity Database (RareFind3, version 3.0.5). Electronic database. Sacramento, CA. (CDFG 2011a)

1b Sacramento Fish and Wildlife Office, Endangered Species Program. Endangered and Threatened Species List website (USFWS 2011).

1c Draft Environmental Impact Statement/Environmental Impact Report. Pacific Gas and Electric Company. San Joaquin Valley Operations and Maintenance Program. Habitat Conservation Plan (PG&E 2006)

1d Draft EIR for Merced Wastewater Treatment Plant Expansion Project (City of Merced 2006)

1e Wildlife and Rare Plant Ecology of Eastern Merced County's Vernal Pool Grasslands (Vollmar 2002)

1f Eastern Merced County Natural Community Conservation Plan HCP (Noss et al. 2002)

[2]. Status designations:

Federal

BGEPA Bald and Golden Eagle Protection Act
FE Listed as Endangered under the federal Endangered Species Act
FT Listed as Threatened under the federal Endangered Species Act
FC Listed as Candidate under the federal Endangered Species Act
FD Delisted
PT Proposed for listing as threatened
– No Listed Status

State of California

FP California Fish and Game Code Fully Protected Species
SA California Department of Fish and Game Special Animals List
SD Delisted
SE California Fish and Game Code Endangered Species
SSC California Department of Fish and Game Species of Special Concern
ST California Fish and Game Code Threatened Species

Critical Habitat south of Magnolia Blvd. Critical habitat for five plant species is located 4.6 miles south of Magnolia Blvd. and 3.4 miles east of Cressey Substation (Figure 2). The Merced River is designated critical habitat for Central Valley steelhead (*Oncorhynchus mykiss irideus*); the river is 0.26 mile south of Gallo Substation. No wildlife connectivity areas or linkage corridors were identified within 5 miles of this route (USFWS 1998, CDFG 2011c).

Wildlife Potentially Occurring in the Study Area

The literature and database review identified 54 special-status wildlife species with potential to occur in or near the study area (Table 3). Based on the initial assessment of wildlife habitats conducted during the reconnaissance field surveys, 10 of these species were determined to have moderate or high potential to occur on the site. Two of these species, Swainson's hawk (*Buteo swainsoni*) and white-tailed kite (*Elanus leucurus*), were observed in the study area during the field reconnaissance surveys. Details of these species that have been documented to occur in the study area or have a moderate or high potential to occur are discussed further below.

An active red-tailed hawk nest was also observed in the study area. The nest was located on a transformer below an existing transmission and distribution tower, south of Gallo Substation (Figure 1, Map 2).

Federally Listed Species

Valley elderberry longhorn beetle – Federally Threatened

Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*; VELB) is completely dependent on its host plant, elderberry (*Sambucus* spp.). Elderberry shrubs are commonly found in the remaining riparian forests and adjacent uplands of California's Central Valley. VELB require elderberry stems that are at least 1.0 inch in diameter (measured at the base) to lay their eggs on. Larvae excavate passages into the elderberry shrub, where they may remain in larval form for as long as two years before they emerge as adults. Exit holes are usually on stems greater than 0.5 inch in diameter, with 70 percent of the exit holes at heights of 4 feet or greater (Barr 1991).

The dense riparian habitat along the Merced River is known to support elderberry bushes (Vollmar 2002). There are three CNDDB occurrences of VELB from the late 1980s and early 90s within 5 miles of the study area (Figure 2). Each of these occurrences is located in the Merced River riparian corridor. During the reconnaissance field survey and botanical resource surveys elderberry shrubs were observed along the west and east side of West Lane, on Palm Avenue, and on the north side of Cressey Substation (Figure 1, Maps 23-25). No elderberry bushes were identified in the vicinity of the seven potential staging areas. A total of twenty-eight elderberry shrubs were observed within the corridor; 27 shrubs had stems greater than 1.0 inch in diameter at ground level. Twenty-five of the elderberry bushes with stems greater than 1.0 inch diameter were located along the road side shoulders of West Avenue and Palm Avenue adjacent to irrigated pastureland (Figure 1, Maps 23-25). No exit holes were observed on any of these twenty-five elderberry shrub stems. Two elderberry shrubs were located adjacent to the northern fence of Cressey Substation. All twenty-seven of these plants were observed to be healthy and unstressed.

Due to the observed occurrence of suitable host plants within the study area, south of Cressey Substation, the valley elderberry longhorn beetle is considered to have a moderate-high potential to occur at that location, and at any location where suitably-sized and healthy host plants are found to occur.

State Listed Species

Western spadefoot – State species of special concern

Western spadefoot toad (*Spea hammondii*) occurs primarily in lowlands and is found frequently in washes, floodplains of rivers, and alluvial fans and flats; however, this species' range also extends into foothills and mountain habitats. Western spadefoots prefer open vegetation with short grasses and sandy or gravely soil (Stebbins 2003). Adult spadefoots are almost entirely terrestrial and spend the majority of their lives underground in burrows they typically construct themselves. The average terrestrial habitat use is within 1,207 feet of aquatic habitats (Semlitsch and Brodie 2003). This species generally emerges above ground during relatively warm rains in the late fall through late spring to breed in ponds and ephemeral wetlands (Morey and Guinn 1992). Water must be present for more than three weeks for metamorphosis to be complete (Jennings and Hayes 1994).

Western spadefoots have been found in scattered locations throughout Merced County (Laabs et al. 2002; CDFG 2011a). Typical breeding habitat for the western spadefoot in Merced County includes vernal pools, stock ponds, seasonal pools, and ephemeral wetlands that hold water for at least 22 days and are free of introduced fish and bullfrogs. There are no CNDDB occurrences of western spadefoot within 5 miles of the study area. However, eight CNDDB occurrences were found during out 16-quad search; the closest occurrence was found 7.8 miles south of Magnolia Avenue and Arena Way. Reconnaissance-level field surveys identified suitable breeding habitat (e.g., seasonal wetlands, ponded water, and ditches) in the pastures south of Cressey Substation (Figure 1, Maps 24-25). The potential seasonal wetland located near the intersection of Mercedes Avenue and the Burlington Northern Santa Fe railroad tracks (Figure 1, Map 22) lacked suitable upland habitat necessary for this species.

Due to the presence of suitable aquatic breeding habitat found in the pastureland south of Cressey Substation, western spadefoots have a moderate potential to occur on the study area within this area.

Coast horned lizard – State species of special concern

The coast horned lizard (*Phrynosoma coronatum*) is associated with a wide variety of habitats including scrubland, grassland, coniferous forest and woodlands. This species is commonly found in lowlands along sandy washes and in habitats with loose, sandy loams and/or sandy-gravelly soils (Jennings and Hayes 1994; Stebbins 2003). This species requires open bare soil for basking, and presence of native harvester ants as prey.

Little is known about coast horned lizard in Merced County (Noss et al. 2002). There is one CNDDB record from 1989 in the vicinity of the study area, approximately 6 miles south of Magnolia Avenue. Historically, coast horned lizards could survive in vineyards with sandy soil

where the substrate was infrequently disturbed; however, with current agricultural practices this is probably no longer the case (Jennings and Hayes 1994). During the reconnaissance-level field surveys, colonies of harvester ants and sandy soils were observed throughout the study area. Sandy soils were identified present adjacent to the potential staging area located on Washington Boulevard (Figure 3, Map 2). However, much of the study area, including locations where harvester ants and sandy soils were observed, has been developed by agriculture and thereby provides this species with only marginally suitable habitat. Overall, based on the presence of sandy soils and harvester ants, coast horned lizard has a moderate potential to occur on the study area.

Western pond turtle – State species of special concern

The western pond turtle (*Emys marmorata*) requires still or slow-moving, temporary or permanent waters, such as ponds, freshwater marshes and pools in perennial streams. They may remain active all year and sometimes move overland for distances of more than 300 feet to find a suitable nesting site (Jennings and Hayes 1994). Pond turtles generally lay their eggs in open areas that are on dry slopes with soils rich in silt and clay.

Western pond turtle are found throughout Merced County (Orloff 2002; CDFG 2011a). There is one CNDDB record of this species within 5 miles of the study area, 2.25 miles north of Magnolia Avenue (Figures 2). Canals and ditches have been found to create travel corridors and connectivity between habitats that have been compromised by fragmentation (Holland 1994). All of the canals in the study area receive water, directly or indirectly, from the Merced River. Suitable aquatic habitat was observed to be present in the larger, mud bottom/vegetated irrigation canals on the study area (Figure 1, Maps 9, 22, 23, 24, and 25).

Due to the observed suitable aquatic habitat (e.g., mud bottom and vegetated irrigation canals) and its connectivity with the Merced River, western pond turtle has a moderate potential to occur on the study area.

Loggerhead shrike – State species of special concern

The loggerhead shrike (*Lanius ludovicianus*) frequents open habitats with sparse trees and shrubs. They are known to utilize fences, trees, power lines and utility poles as lookout posts for scanning broad open areas where suitable prey abounds. This species nests in small trees, large shrubs and hedgerows (Yosef 1996). There are no CNDDB records of this species nesting in the vicinity of the study area; however, this species is a common winter and breeding bird in Merced County (Sloat and Whisler 2002). Suitable foraging and nesting habitat is present in open annual grasslands, pasture land and adjacent planted trees throughout the study area. This species was found to have a moderate potential to occur on the study area.

Mountain plover – State species of special concern

Mountain plovers (*Charadrius montanus*) are winter migrants generally found on plowed agricultural fields. During the summer they migrate to nest in the dry prairies and short grass plains of northern Montana, southeastern Colorado and Wyoming. Typically this species nests in a scraped depression on bare ground, lined with grasses, roots and cow manure (Kaufman 1996). There is one CNDDB record of this species in the vicinity (approximately 14 miles northeast of

Cressey Substation). Suitable foraging habitat for this species is present in open pasture land and grasslands found throughout the study area. Mountain plover has a moderate potential to occur (during the winter) in the study area.

Swainson's hawk – State Threatened

Swainson's hawk (*Buteo swainsoni*) occurs in California during the breeding season (March-September) and winters in South America and Mexico. This species primarily consumes insects and small rodents while foraging in large, open plains and grasslands. Hay, grain, and most row crops also provide suitable foraging habitat during at least part of the breeding season. Vineyards and orchards are unsuitable because prey is scarce or unavailable due to vegetation density (Estep 1989). Swainson's hawks usually nest in large trees, preferring native species. Most nest sites are found in riparian habitats, but species may also use mature roadside trees, isolated individual trees in agricultural fields, small groves of oaks, and trees around farm houses (Schlorff and Bloom 1984). Swainson's hawks nest in low densities in Merced County.

Five Swainson's hawk CNDDB occurrences were found within 5 miles of the study area (Figure 2). Four of these occurrences were observations of active nests; the closest is approximately 1.9 miles northwest of Mercedes Avenue. During the reconnaissance-level survey an adult Swainson's hawk was observed flying over the study area (Figure 1, Map 16). Suitable foraging habitat is present in open annual grasslands, pasture land and agricultural croplands throughout the study area. Suitable nest trees were observed throughout the study area; many are located adjacent to farm houses in the vicinity of urban complexes.

Western burrowing owl – State species of special concern

Western burrowing owls (*Athene cunicularia hypugea*) prefer open, flat or gently sloped grasslands and require burrows for nesting. This species nests and forages in grasslands and agricultural lands. Western burrowing owl typically nests in burrows created by California ground squirrels (*Spermophilus beecheyi*) but they will also nest in artificial structures, such as polyvinyl chloride (PVC) pipe, concrete rubble piles, and small, dry culverts. Western burrowing owl is known to occur throughout Merced County; breeding owls are more common than wintering owls in the county (Sloat and Whister 2002).

There are five CNDDB occurrences of western burrowing owl within the vicinity of the study area; with the closest occurrence located 6.5 miles southwest of Magnolia Avenue and Arena Way. During the reconnaissance field surveys and desktop analysis suitable foraging habitat was found present in open annual grasslands, pasture land and agricultural croplands throughout the study area. California ground squirrel burrows, which are suitable as nesting sites, were also present.

Due to the observed suitable nesting and foraging habitat throughout the study area, western burrowing owl was determined to have a moderate potential to occur on the project.

White-tailed kite – State fully protected species

The white-tailed kite (*Elanus leucurus*) inhabits open lowland valleys and low, rolling foothills. They forage in grasslands, marshes, riparian edges, and cultivated fields where prey species

(mainly ground squirrels and jackrabbits) are relatively abundant (Kaufman 1996). Kites typically nest on the tops of trees in close proximity to good foraging locations. There are no CNDDB records of this species nesting in the vicinity of the study area; however, suitable foraging habitat is present in open annual grasslands, pasture land and agricultural croplands throughout the study area. Marginal nesting habitat was found present on the study area during the reconnaissance field surveys; this species is unlikely to nest on the study area because of the abundant orchard and vineyard land cover types, which are not suitable for foraging by this species.

Western red bat – State species of special concern

The western red bat (*Lasiurus blossevillii*) is widely distributed throughout California and known to occur in a variety of habitats, including forested canyons, riparian zones and arid areas where they primarily roost in trees (Reid 2006). This non-colonial species roosts almost exclusively in foliage, under overhanging leaves. Western red bats have been either observed or detected acoustically at the time of emergence in cotton/sycamore and willow riparian habitats, and in fruit orchards (Pierson et al. 2000; Pierson and Rainey 2002).

Pierson et al. (2006) suggest that Central Valley habitats are most important for breeding populations. Western red bats are known to occur in Merced County in association with both cottonwood riparian habitat and fruit orchards (Pierson and Rainey 2002). There are no CNDDB occurrences within 5 miles of the study area. Limited suitable foraging habitat for this species is present within the study area along the canals in the vicinity of the Merced River (Figure 1, Map 25). Marginal roosting habitat (e.g., fruit orchards and other large planted trees) is present in the study area.

Due to the presence of suitable foraging habitat and roosting habitat in the study area, western red bat has a moderate potential to be found on the study area in the vicinity of the Merced River. This species is more likely to be observed foraging on or near the study area than roosting on the project.

8. References

Barr, C. B. 1991. The distribution, habitat and status of the Valley Elderberry Longhorn Beetle Desmocerus californicus demorphus Fisher (Insecta: Coleoptera: Cermabycidae). U.S. Fish and Wildlife Service, Sacramento, CA.

Blevins, J. 2011. Personal communication regarding the flooding of the cropland at the corner of Magnolia Avenue and Arena Way. Loni Cooper/GANDA spoke with area resident and employee of CA Sweet Potato Growers Judy Blevins regarding the flooding of the cropland fields across the street from the sweet potato packing company. Ms. Blevins informed Ms. Cooper that a nearby dairy had recently drained their lagoon into the field after the corn was harvested. Ms. Blevins indicated that this flooding practice was periodically conducted by the dairy. (Personal communication on April 5, 2011 at the California Sweet Potato Growers reception area).

California Department of Fish and Game (CDFG)

2008. California Wildlife Habitat Relationships System (Version 8.2 Softerware and Manual).

2009. California Natural Resources Agency: Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities. November 24, 2009. Accessed at: http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/Protocols_for_Surveying_and_Evaluating_Impacts.pdf

2010. California Natural Diversity Database . Quickviewer online database. Accessed at: http://imaps.dfg.ca.gov/viewers/cnddb_quickviewer/app.asp

2011a.California Natural Diversity Database (RareFind3, version 3.0.5). Electronic database. Sacramento, CA.

2011b. Special Animals. California Natural Diversity Database. January.

2011c. BIOS Essential Habitat Connectivity database. February.

2012. California Natural Diversity Database (RareFind3, version 3.0.5). Electronic database. Sacramento, CA.

California High-Speed Rail Authority and Federal Railroad Administration. 2011. Merced to Fresno Section Biological Resources and Wetlands Final Technical Report, California High-Speed Train Project EIR/EIS. Sacramento, CA, and Washington, DC. Prepared by AECOM and CH2M HILL. April 2012.

California Native Plant Society (CNPS) 2010, 2012. Inventory of rare and endangered plants of California (online edition, version 6.3). Accessed at: http://www.cnps.web.aplus.net/cgi-bin/inv/inventory.cgi

City of Merced. 2006. Wastewater Treatment Plant Expansion Project. Draft Environmental Impact Report.

Estep, J. A. 1989. Biology, movements, and habitat relationships of the Swainson's hawk in the Central Valley of California, 1986-1987. California Department of Fish and Game. Sacramento, CA.

Fisher, R. N. and H. B. Shaffer. 1996 The decline of amphibians in California's great central valley. Conservation Biology 10(5):1387-1397.

Holland, D. C. 1994. The western pond turtle: habitat and history. Final Report for Bonneville Power Administration and Oregon Department of Fish and Wildlife.

Holland, R. F. 1986. Preliminary descriptions of the terrestrial natural communities of California. California Department of Fish and Game. Unpublished report.

Huddleston, R. 2011. Personal communication regarding Sanford's arrow (*Sagittaria sanfordii*) being detected in a ditch during the Merced to Fresno High Speed Rail Plant surveys. Mr. Huddleston, a CH2M HILL biologist, indicated that CNDDB forms were filled out but may have not been submitted yet or the data not entered into the system yet. (Phone conversation June 1, 2011).

Jennings, M. R. 1996. Status of amphibians. In Sierra Nevada preservation project, final report to Congress. Vol II, assessments for management options. Davis: University of California, Centers for Water and Wildland Resources.

Jennings, M. R. and M. P. Hayes. 1994. *Amphibian and reptile species of special concern in California.* California Department of Fish and Game. Rancho Cordova 255 pp.

Jepson Online Interchange. 2010. An online database for California floristics. Available at: http://ucjeps.berkeley.edu/interchange.html

Kaufman, K. 1996. *Lives of North American Birds*. Houghton Mifflin Company, New York, New York. 675 pp.

Laabs, D. M. and M. L. Allaback. 2002. Chapter 8 Small Mammals Pg. 313-330 *in* J.E. Vollmar (Ed). Wildlife and Rare Plant Ecology of Eastern Merced County's Vernal Pool Grasslands.

Laabs, D. M., S. G. Orloff and M. L. Allaback. 2002. Chapter 5 Pond and Stream-breeding Amphibians Pg. 191-229 *in* J.E. Vollmar (Ed). Wildlife and Rare Plant Ecology of Eastern Merced County's Vernal Pool Grasslands.

Morey, S. R. and D. A. Guinn. 1992. Activity patterns, food habits, and changing abundance in a community of vernal pool amphibians. Pages 149-158 In: D.F. Williams, S. Byrne and T. A. Rado (editors), Endangered and sensitive species in the San Joaquin Valley, California: Their biology, management, and conservation. The California Energy Commission, Sacramento, California, and the Western Section of the Wildlife Society.

Noss, R., R. Amundson, M. Barbour, R. Bugg, B. Cypher, R. Grosberg. T. Hanes, R. Hansen, B. Pavlik, K. Rice, P. Trenham, B. Shaffer, and B. Weir. 2002. Eastern Merced County Natural Community Conservation Plan Habitat Conservation Plan.

Orloff, S. G. 2002. Chapter 6 Aquatic Reptiles. Pg. 233-252 *in* J.E. Vollmar (Ed). Wildlife and Rare Plant Ecology of Eastern Merced County's Vernal Pool Grasslands.

Pacific Gas and Electric (PG&E) 2006. Draft Environmental Impact Statement/Environmental Impact Report. Pacific Gas and Electric Company. San Joaquin Valley Operations and Maintenance Program. Habitat Conservation Plan.

Petranka, J. W. 1998. Salamanders of the United States and Canada. Smithsonian Institution Press, Washington and London.

Pierson, E. D. W. E. Rainey, and C. Corben. 2000. Distribution and status of red bats, *Lasiurus blossevillii* in California. Report to Species Conservation and Recovery Program, Habitat Conservation Planning Branch, California Department of Fish and Game, Sacramento, CA. 40 pp.

Pierson, E. D. and W.E. Rainey. 2002. Chapter 10 Bats Pg. 385-400 *in* J.E. Vollmar (Ed). Wildlife and Rare Plant Ecology of Eastern Merced County's Vernal Pool Grasslands.

Pierson, E. D., W. E. Rainey and C. Corben. 2006. Distribution and status of Western red bats (*Lasiurus blossevillii*) in California. California Dept. of Fish and Game, Habitat Conservation Planning Branch, Species Conservation and Recovery Program Report 2006-04, Sacramento, CA 45 pp.

Reid, F. A. 2006. Mammals of North America, Fourth Edition. Houghton Mifflin, Boston.

Sawyer, J. O., T. Keeler-Wolf, and J. M. Evens. 2009. A Manual of California Vegetation, Second Edition. California Native Plant Society. Sacramento, CA.

Schlorff, R. W. and P. H. Bloom. 1984. Importance of riparian systems to nesting Swainson's hawks in the Central Valley of California. Pp. 612-618 *in* R.W. Warner and K.M. Hendrix (Eds.). California riparian systems – ecology, conservation, and productive management . University of California Press. Berkeley, CA.

Semlitsch, R. D. and J. R. Brodie. 2003. Biological criteria for buffer zones around wetlands and riparian habitats for amphibians and reptiles. *Conservation Biology* 17(5): 1219-1228.

Sloat, T. R. and E. D. Whisler. 2002. Chapter 7 Birds Pg. 253-285 *in* J.E. Vollmar (Ed). Wildlife and Rare Plant Ecology of Eastern Merced County's Vernal Pool Grasslands.

Stebbins, R. C. 2003. Western Reptiles and Amphibians, Third Edition. Houghton Mifflin, Boston.

United States Fish and Wildlife Service (USFWS)
1998. Recovery plan for upland species of the San Joaquin Valley, California. Region 1, Portland, OR. 319 pp.
1999. *Conservation Guidelines for the Valley Elderberry Longhorn Beetle*, July 9, 1999.
2011. USFWS Sacramento Fish and Wildlife Office, Endangered Species Program. Endangered and Threatened Species List website. www.fws.gov/endangered/ January.
2012. USFWS Sacramento Fish and Wildlife Office, Endangered Species Program. Endangered and Threatened Species List website. www.fws.gov/endangered/ September

Vollmar, J. E. 2002. Wildlife and Rare Plant Ecology of Eastern Merced County's Vernal Pool Grasslands.

Yosef, R. 1996. Loggerhead shrike (*Lanius ludovicianus*) *in* A. Poole and F. Gill (Eds.). The Birds of North America, Number 231. The Academy of Natural Sciences, Philadelphia, PA, and The American Ornithologists' Union, Washington, D.C.

FIGURES

Cressey-Gallo 120 Foot
Area of Direct Effects

Cressey-Gallo 600 Foot
Area of Potential Indirect Effects

Substation

Do Not Access Parcel

Elderberry Bush with Stems Greater than 1 Inch

Elderberry Bush with Stems Less than 1 Inch

Vegetation and Landcover Types

- Annual Grassland (gs)
- Pastureland (agps)
- Orchard (agor)
- Vineyard (agvn)
- Other Cropland (agcr)
- Planted Trees (pt)
- Ruderal (rud)
- Developed/ Landscaped (dev)
- Irrigation Canal (ic)
- Ditch (d)
- Bare Ground (bar)

Wetland Types

- Irrigated Pasture (ip)
- Ponded Water (pw)
- Seasonal Ponded Area (spa)

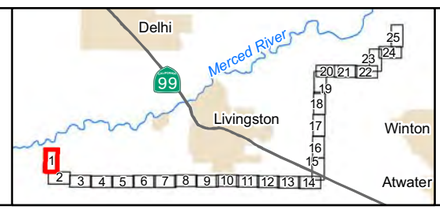
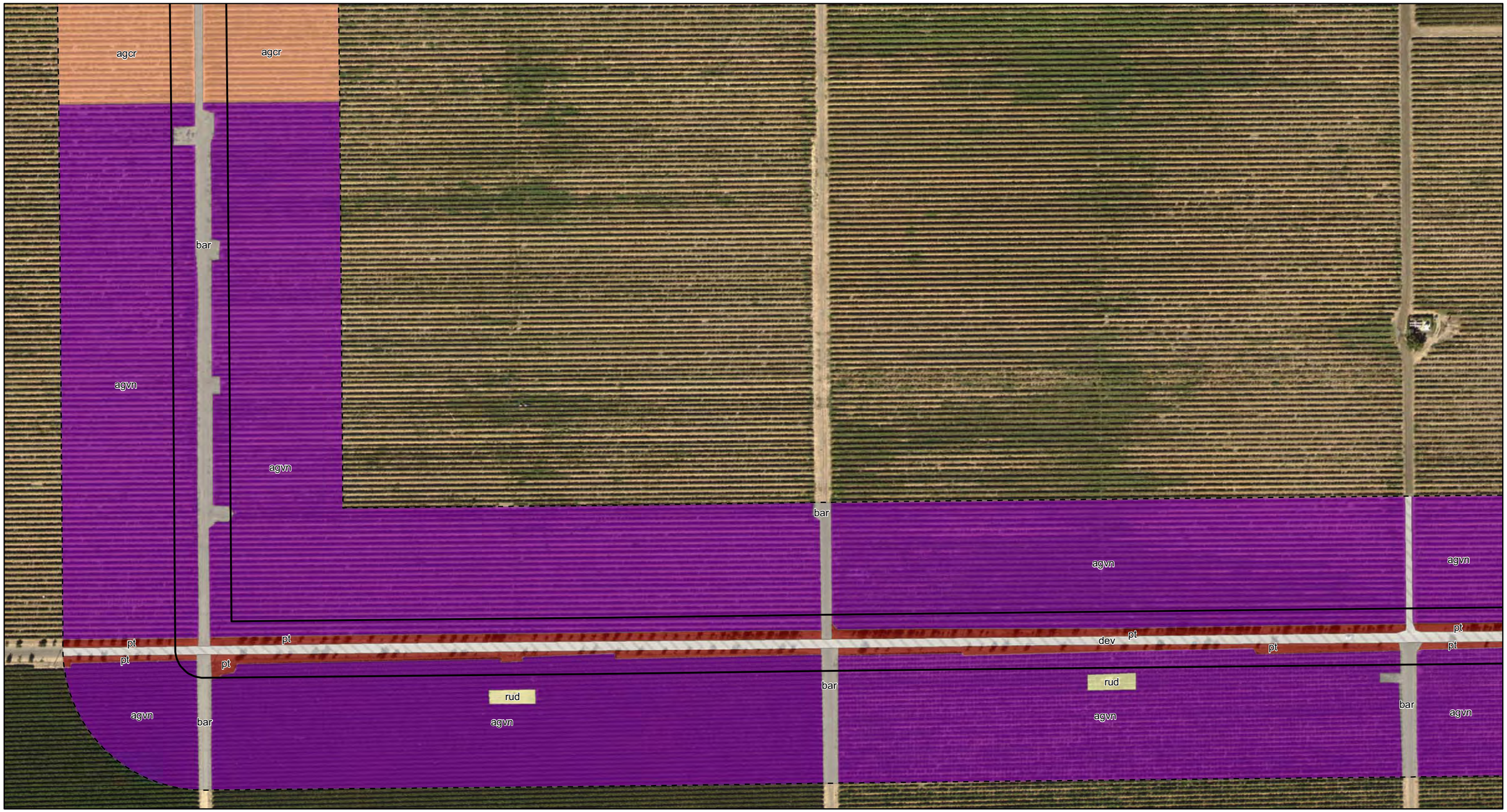


Figure 1: Habitat Assessment
Cressey-Gallo 115 kV
Power Line Project
Map 1 of 25

0 100 200 Feet

N



Cressey-Gallo 120 Foot Area of Direct Effects

Cressey-Gallo 600 Foot Area of Potential Indirect Effects

Substation

Do Not Access Parcel

Elderberry Bush with Stems Greater than 1 Inch

Elderberry Bush with Stems Less than 1 Inch

Vegetation and Landcover Types

- Annual Grassland (gs)
- Pastureland (agps)
- Orchard (agor)
- Vineyard (agvn)
- Other Cropland (agcr)
- Planted Trees (pt)
- Ruderal (rud)
- Developed/ Landscaped (dev)
- Irrigation Canal (ic)
- Ditch (d)
- Bare Ground (bar)

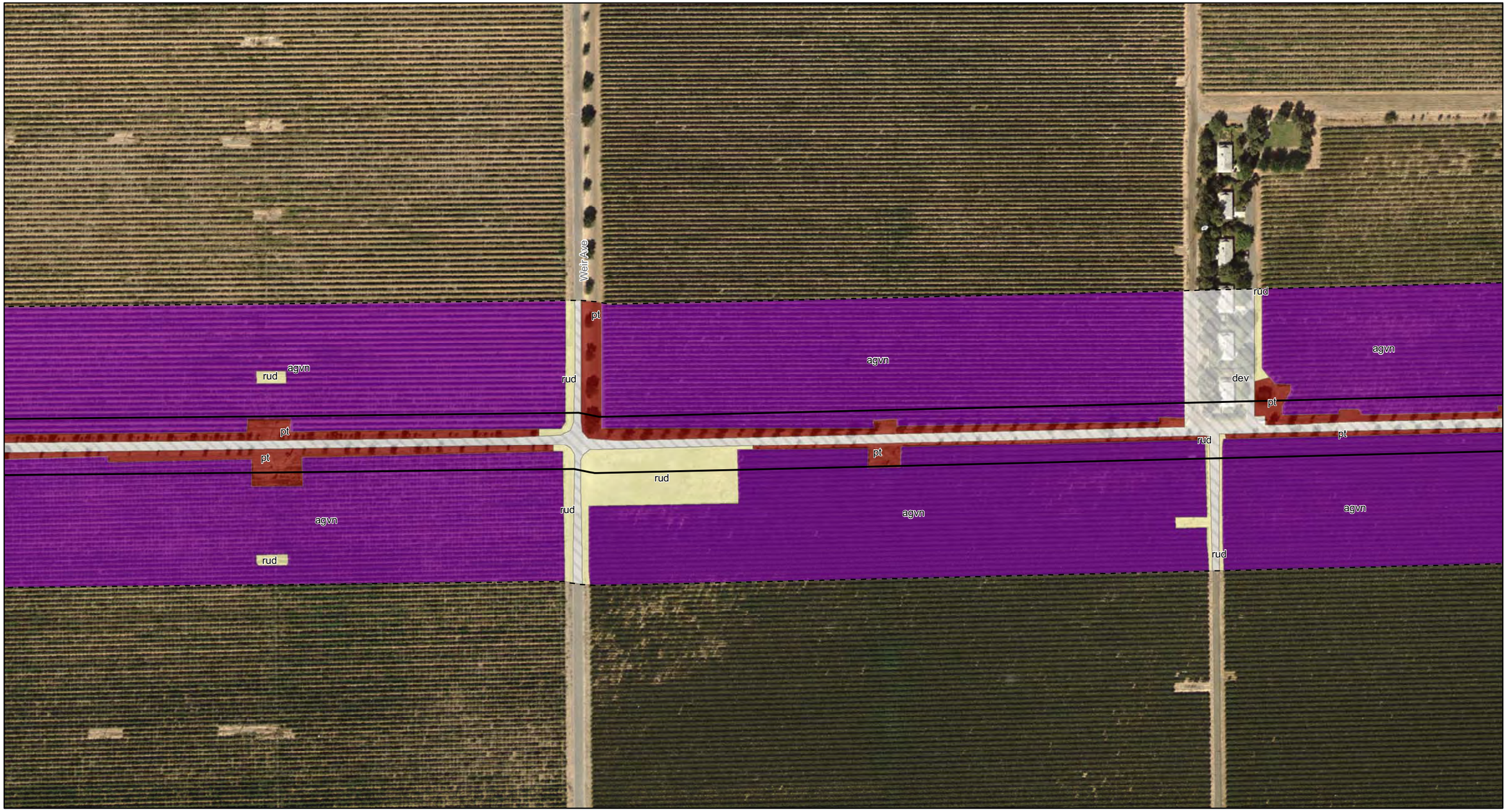
Wetland Types

- Irrigated Pasture (ip)
- Ponded Water (pw)
- Seasonal Ponded Area (spa)

Figure 1: Habitat Assessment
Cressey-Gallo 115 kV Power Line Project
Map 2 of 25

0 100 200 Feet

N



Project Location

Cressey-Gallo 120 Foot Area of Direct Effects
Cressey-Gallo 600 Foot Area of Potential Indirect Effects
Substation
Do Not Access Parcel
Elderberry Bush with Stems Greater than 1 Inch
Elderberry Bush with Stems Less than 1 Inch

Vegetation and Landcover Types

- Annual Grassland (gs)
- Pastureland (agps)
- Orchard (agor)
- Vineyard (agvn)
- Other Cropland (agcr)
- Planted Trees (pt)
- Ruderal (rud)
- Developed/ Landscaped (dev)
- Irrigation Canal (ic)
- Ditch (d)
- Bare Ground (bar)

Wetland Types

- Irrigated Pasture (ip)
- Ponded Water (pw)
- Seasonal Ponded Area (spa)

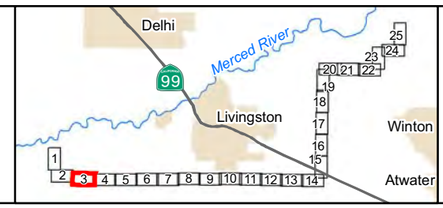
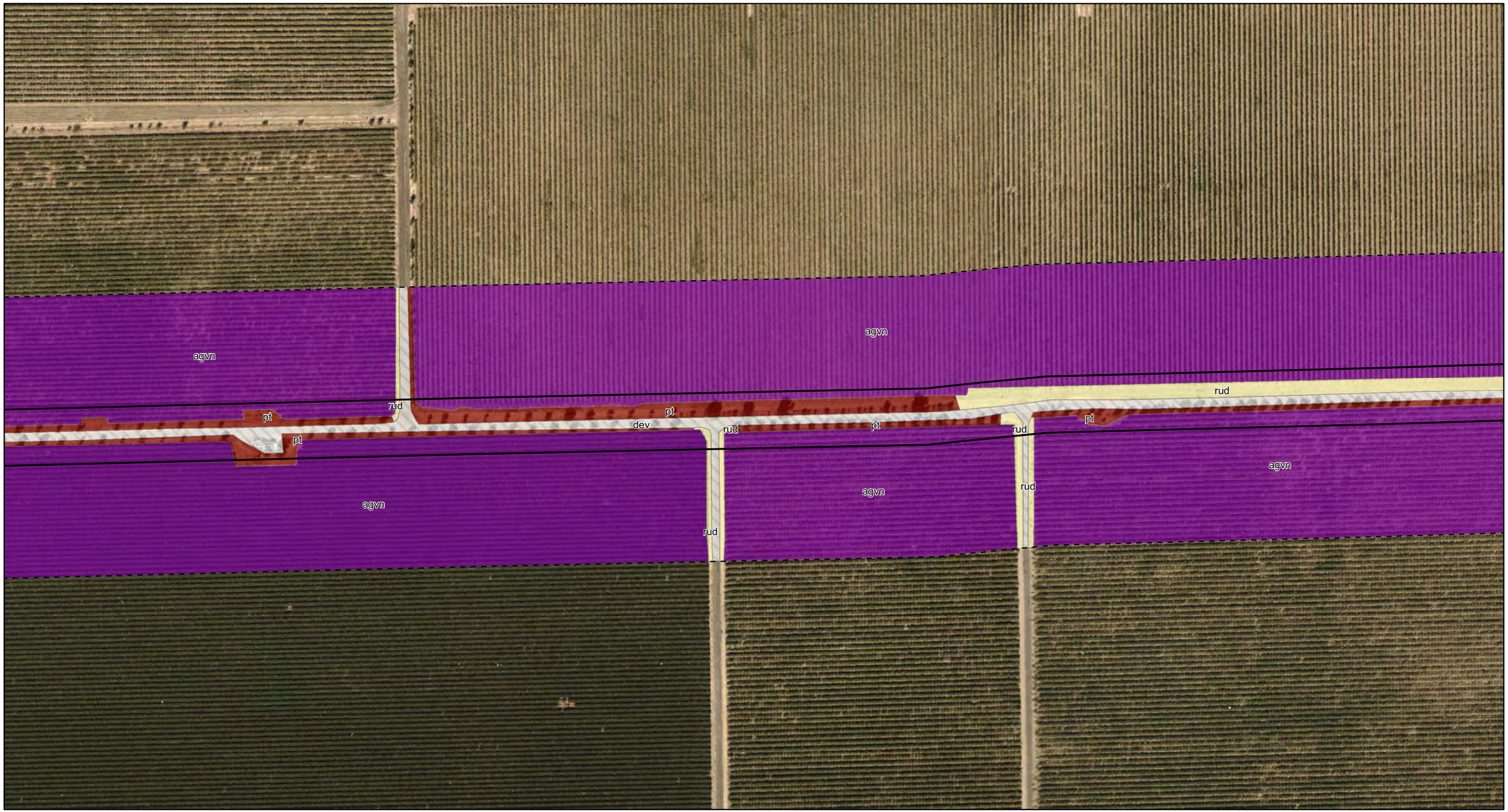


Figure 1: Habitat Assessment
Cressey-Gallo 115 kV Power Line Project
Map 3 of 25

0 100 200 Feet

N



Project Location

- Cressey-Gallo 120 Foot Area of Direct Effects
- Cressey-Gallo 600 Foot Area of Potential Indirect Effects
- Substation
- Do Not Access Parcel
- Elderberry Bush with Stems Greater than 1 Inch
- Elderberry Bush with Stems Less than 1 Inch

Vegetation and Landcover Types

- Annual Grassland (gs)
- Pastureland (agps)
- Orchard (agor)
- Vineyard (agvn)
- Other Cropland (agcr)
- Planted Trees (pt)
- Ruderal (rud)
- Developed/ Landscaped (dev)
- Irrigation Canal (ic)
- Ditch (d)
- Bare Ground (bar)

Wetland Types

- Irrigated Pasture (ip)
- Ponded Water (pw)
- Seasonal Ponded Area (spa)

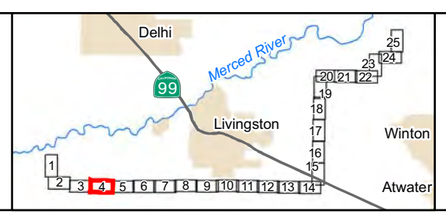


Figure 1: Habitat Assessment
Cressey-Gallo 115 kV Power Line Project
Map 4 of 25

0 100 200 Feet

N

Cressey-Gallo 120 Foot
Area of Direct Effects

Cressey-Gallo 600 Foot
Area of Potential Indirect Effects

Substation

Do Not Access Parcel

Elderberry Bush with Stems Greater than 1 Inch

Elderberry Bush with Stems Less than 1 Inch

Vegetation and Landcover Types

- Annual Grassland (gs)
- Pastureland (agps)
- Orchard (agor)
- Vineyard (agvn)
- Other Cropland (agcr)
- Planted Trees (pt)
- Ruderal (rud)
- Developed/ Landscaped (dev)
- Irrigation Canal (ic)
- Ditch (d)
- Bare Ground (bar)

Wetland Types

- Irrigated Pasture (ip)
- Ponded Water (pw)
- Seasonal Ponded Area (spa)

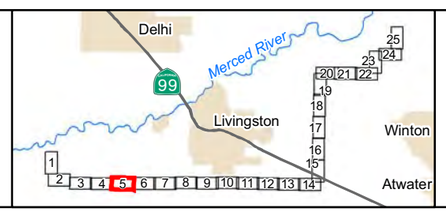


Figure 1: Habitat Assessment
Cressey-Gallo 115 kV
Power Line Project
Map 5 of 25

0 100 200 Feet

N

Cressey-Gallo 120 Foot Area of Direct Effects
Cressey-Gallo 600 Foot Area of Potential Indirect Effects
Substation
Do Not Access Parcel
Elderberry Bush with Stems Greater than 1 Inch
Elderberry Bush with Stems Less than 1 Inch

Vegetation and Landcover Types

- Annual Grassland (gs)
- Pastureland (agps)
- Orchard (agor)
- Vineyard (agvn)
- Other Cropland (agcr)
- Planted Trees (pt)
- Ruderal (rud)
- Developed/ Landscaped (dev)
- Irrigation Canal (ic)
- Ditch (d)
- Bare Ground (bar)

Wetland Types

- Irrigated Pasture (ip)
- Ponded Water (pw)
- Seasonal Ponded Area (spa)

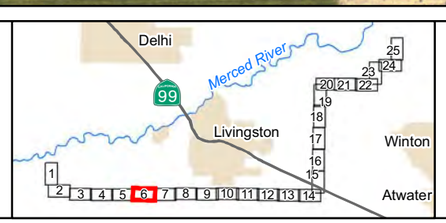
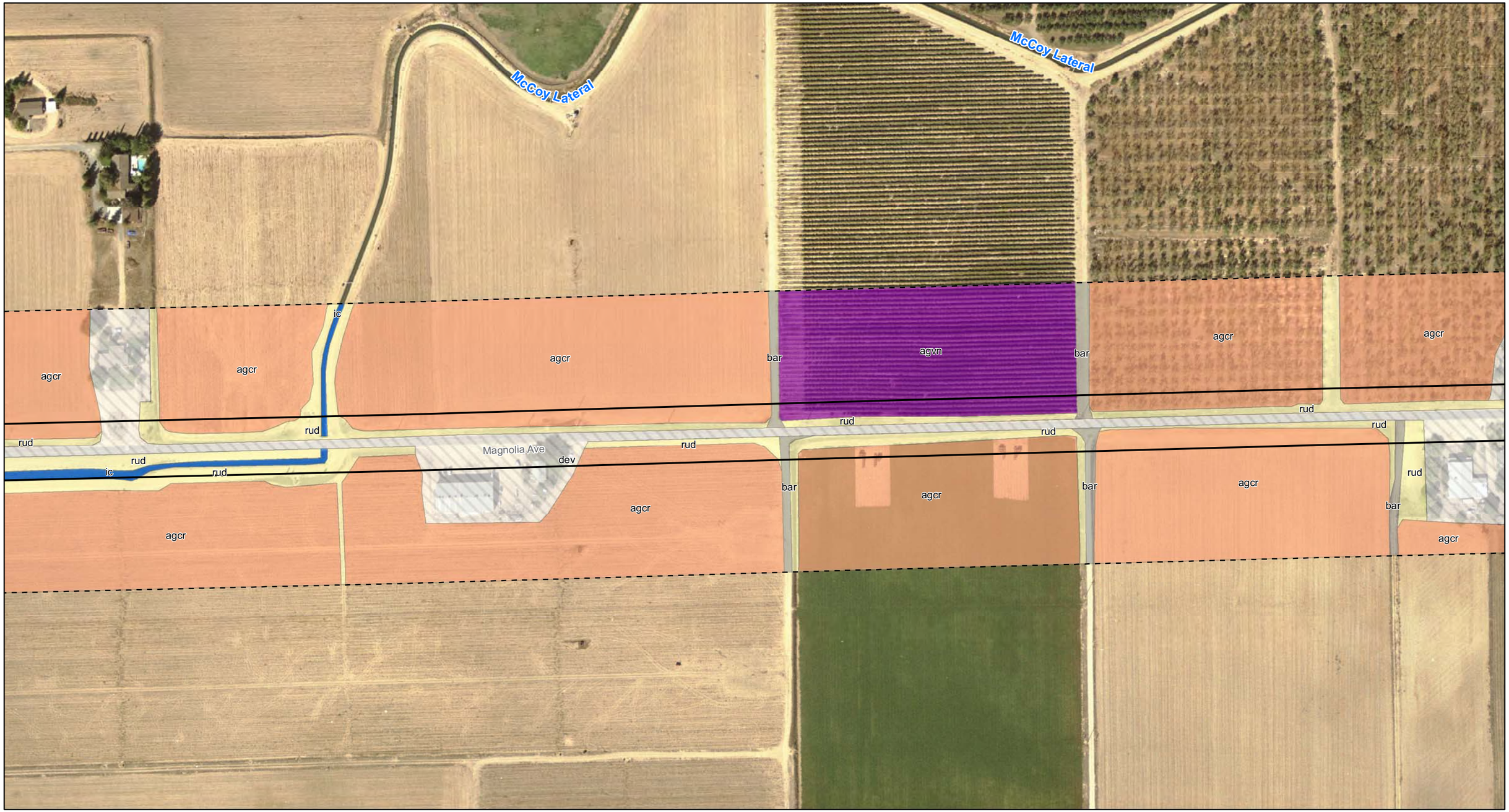


Figure 1: Habitat Assessment
Cressey-Gallo 115 kV
Power Line Project
Map 6 of 25

0 100 200 Feet

N



Cressey-Gallo 120 Foot Area of Direct Effects

Cressey-Gallo 600 Foot Area of Potential Indirect Effects

Substation

Do Not Access Parcel

Elderberry Bush with Stems Greater than 1 Inch

Elderberry Bush with Stems Less than 1 Inch

Vegetation and Landcover Types

- Annual Grassland (gs)
- Pastureland (agps)
- Orchard (agor)
- Vineyard (agvn)
- Other Cropland (agcr)
- Planted Trees (pt)
- Ruderal (rud)
- Developed/ Landscaped (dev)
- Irrigation Canal (ic)
- Ditch (d)
- Bare Ground (bar)

Wetland Types

- Irrigated Pasture (ip)
- Ponded Water (pw)
- Seasonal Ponded Area (spa)

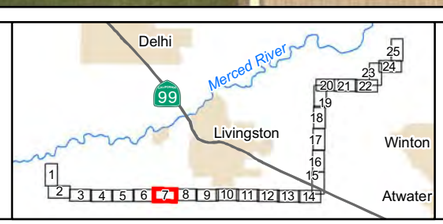


Figure 1: Habitat Assessment
Cressey-Gallo 115 kV Power Line Project
Map 7 of 25

0 100 200 Feet

N

Project Location

Cressey-Gallo 120 Foot Area of Direct Effects
Cressey-Gallo 600 Foot Area of Potential Indirect Effects
Substation
Do Not Access Parcel
Elderberry Bush with Stems Greater than 1 Inch
Elderberry Bush with Stems Less than 1 Inch

Vegetation and Landcover Types

- Annual Grassland (gs)
- Pastureland (agps)
- Orchard (agor)
- Vineyard (agvn)
- Other Cropland (agcr)
- Planted Trees (pt)
- Ruderal (rud)
- Developed/ Landscaped (dev)
- Irrigation Canal (ic)
- Ditch (d)
- Bare Ground (bar)

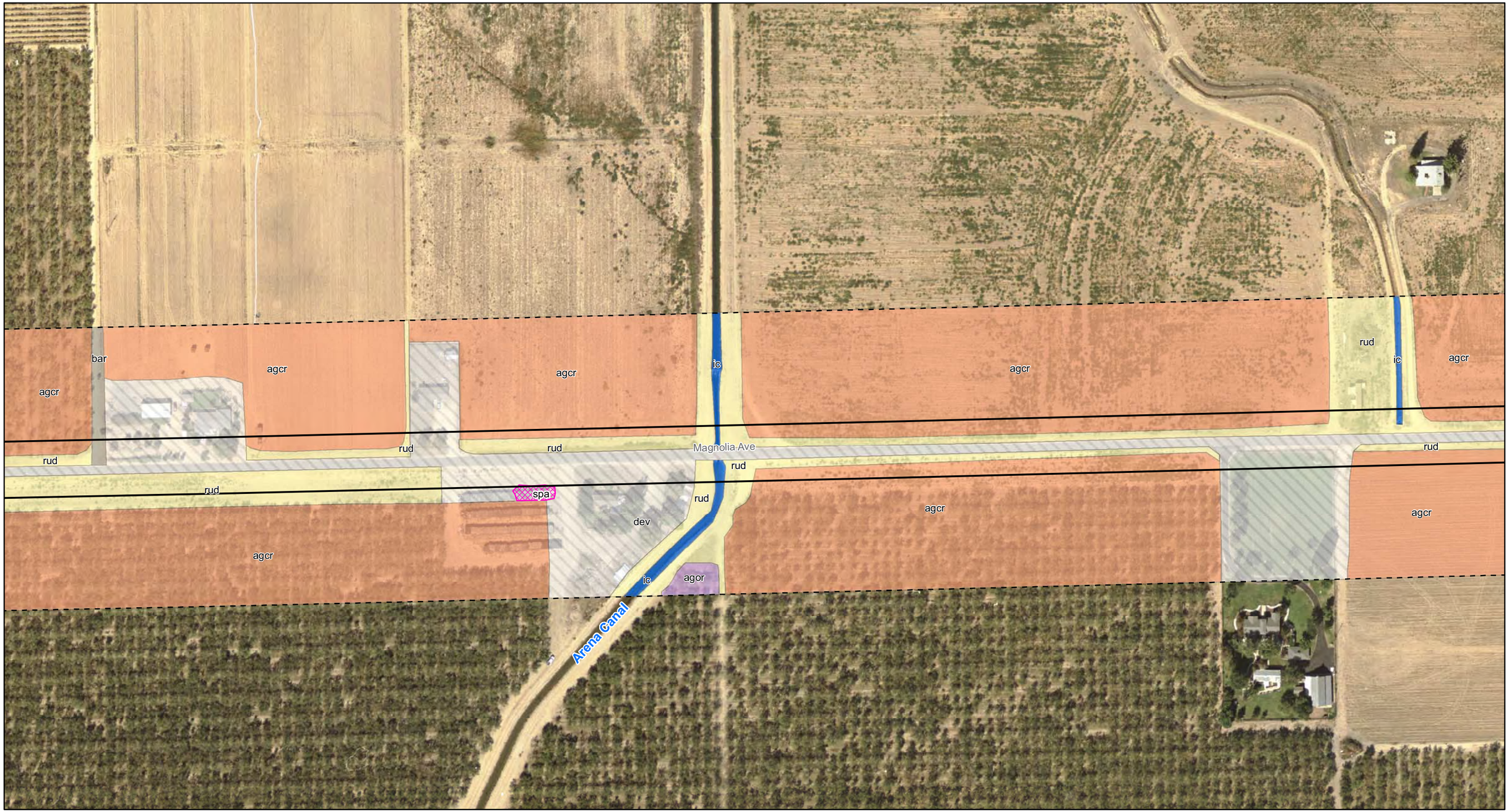
Wetland Types

- Irrigated Pasture (ip)
- Ponded Water (pw)
- Seasonal Ponded Area (spa)

Figure 1: Habitat Assessment
Cressey-Gallo 115 kV Power Line Project
Map 8 of 25

0 100 200 Feet

N



Cressey-Gallo 120 Foot Area of Direct Effects
Cressey-Gallo 600 Foot Area of Potential Indirect Effects
Substation
Do Not Access Parcel
Elderberry Bush with Stems Greater than 1 Inch
Elderberry Bush with Stems Less than 1 Inch

Vegetation and Landcover Types

- Annual Grassland (gs)
- Pastureland (agps)
- Orchard (agor)
- Vineyard (agvn)
- Other Cropland (agcr)
- Planted Trees (pt)
- Ruderal (rud)
- Developed/ Landscaped (dev)
- Irrigation Canal (ic)
- Ditch (d)
- Bare Ground (bar)

Wetland Types

- Irrigated Pasture (ip)
- Ponded Water (pw)
- Seasonal Ponded Area (spa)

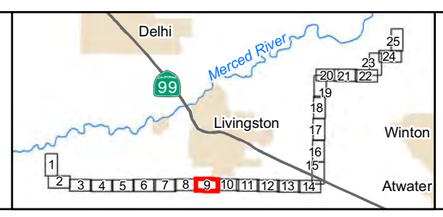


Figure 1: Habitat Assessment
Cressey-Gallo 115 kV Power Line Project
Map 9 of 25

0 100 200 Feet

N

Project Location

Cressey-Gallo 120 Foot Area of Direct Effects
Cressey-Gallo 600 Foot Area of Potential Indirect Effects
Substation
Do Not Access Parcel
Elderberry Bush with Stems Greater than 1 Inch
Elderberry Bush with Stems Less than 1 Inch

Vegetation and Landcover Types

- Annual Grassland (gs)
- Pastureland (agps)
- Orchard (agor)
- Vineyard (agvn)
- Other Cropland (agcr)
- Planted Trees (pt)
- Ruderal (rud)
- Developed/ Landscaped (dev)
- Irrigation Canal (ic)
- Ditch (d)
- Bare Ground (bar)

Wetland Types

- Irrigated Pasture (ip)
- Ponded Water (pw)
- Seasonal Ponded Area (spa)

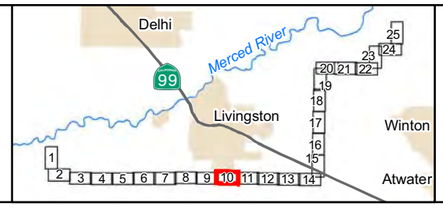


Figure 1: Habitat Assessment
Cressey-Gallo 115 kV Power Line Project
Map 10 of 25

0 100 200 Feet

N

Cressey-Gallo 120 Foot Area of Direct Effects
Cressey-Gallo 600 Foot Area of Potential Indirect Effects
Substation
Do Not Access Parcel
Elderberry Bush with Stems Greater than 1 Inch
Elderberry Bush with Stems Less than 1 Inch

Vegetation and Landcover Types
- Annual Grassland (gs)
- Pastureland (agps)
- Orchard (agor)
- Vineyard (agvn)
- Other Cropland (agcr)
- Planted Trees (pt)
- Ruderal (rud)
- Developed/ Landscaped (dev)
- Irrigation Canal (ic)
- Ditch (d)
- Bare Ground (bar)

Wetland Types
- Irrigated Pasture (ip)
- Ponded Water (pw)
- Seasonal Ponded Area (spa)

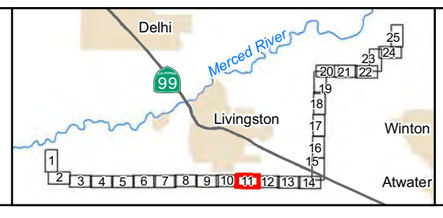


Figure 1: Habitat Assessment
Cressey-Gallo 115 kV Power Line Project
Map 11 of 25

0 100 200 Feet

N

Project Location

- Cressey-Gallo 120 Foot Area of Direct Effects
- Cressey-Gallo 600 Foot Area of Potential Indirect Effects
- Substation
- Do Not Access Parcel
- Elderberry Bush with Stems Greater than 1 Inch
- Elderberry Bush with Stems Less than 1 Inch

Vegetation and Landcover Types

- Annual Grassland (gs)
- Pastureland (agps)
- Orchard (agor)
- Vineyard (agvn)
- Other Cropland (agcr)
- Planted Trees (pt)
- Ruderal (rud)
- Developed/ Landscaped (dev)
- Irrigation Canal (ic)
- Ditch (d)
- Bare Ground (bar)

Wetland Types

- Irrigated Pasture (ip)
- Ponded Water (pw)
- Seasonal Ponded Area (spa)

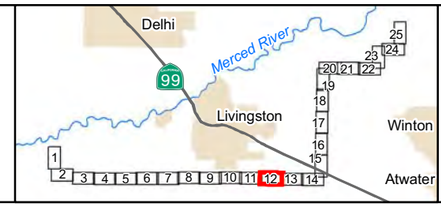
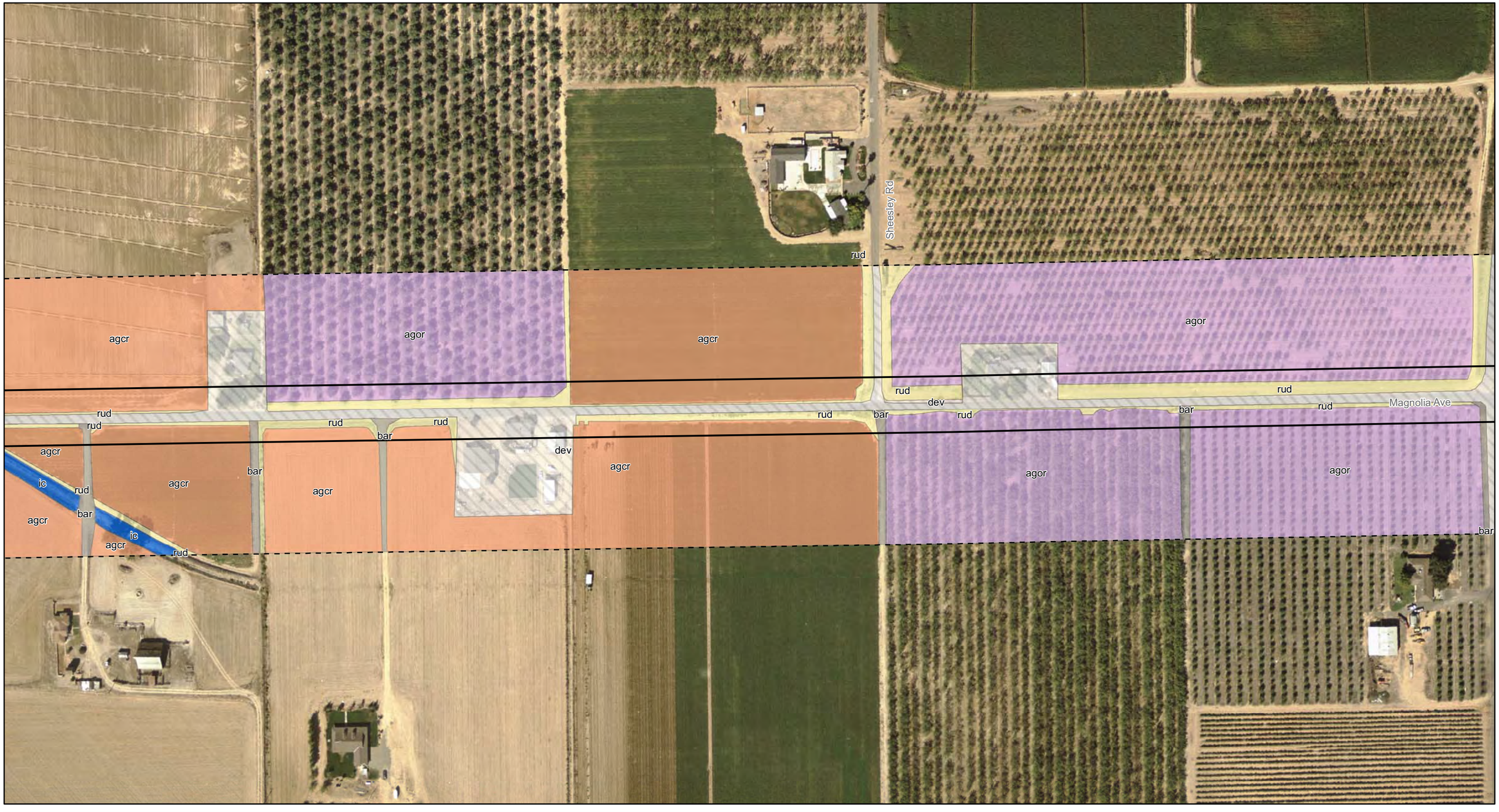


Figure 1: Habitat Assessment
Cressey-Gallo 115 kV Power Line Project
Map 12 of 25

0 100 200 Feet

N



Cressey-Gallo 120 Foot Area of Direct Effects
Cressey-Gallo 600 Foot Area of Potential Indirect Effects
Substation
Do Not Access Parcel
Elderberry Bush with Stems Greater than 1 Inch
Elderberry Bush with Stems Less than 1 Inch

Vegetation and Landcover Types

- Annual Grassland (gs)
- Pastureland (agps)
- Orchard (agor)
- Vineyard (agvn)
- Other Cropland (agcr)
- Planted Trees (pt)
- Ruderal (rud)
- Developed/ Landscaped (dev)
- Irrigation Canal (ic)
- Ditch (d)
- Bare Ground (bar)

Wetland Types

- Irrigated Pasture (ip)
- Ponded Water (pw)
- Seasonal Ponded Area (spa)

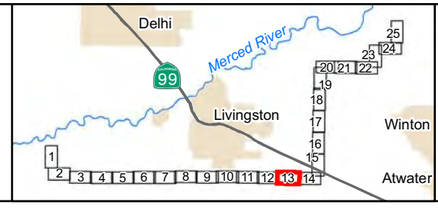


Figure 1: Habitat Assessment
Cressey-Gallo 115 kV Power Line Project
Map 13 of 25

0 100 200 Feet

N

Cressey-Gallo 120 Foot Area of Direct Effects
Cressey-Gallo 600 Foot Area of Potential Indirect Effects
Substation
Do Not Access Parcel
Elderberry Bush with Stems Greater than 1 Inch
Elderberry Bush with Stems Less than 1 Inch

Vegetation and Landcover Types

- Annual Grassland (gs)
- Pastureland (agps)
- Orchard (agor)
- Vineyard (agvn)
- Other Cropland (agcr)
- Planted Trees (pt)
- Ruderal (rud)
- Developed/ Landscaped (dev)
- Irrigation Canal (ic)
- Ditch (d)
- Bare Ground (bar)

Wetland Types

- Irrigated Pasture (ip)
- Ponded Water (pw)
- Seasonal Ponded Area (spa)

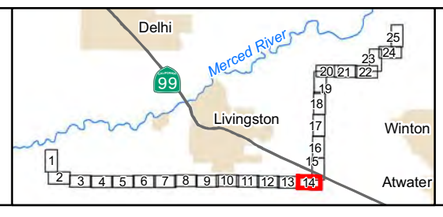
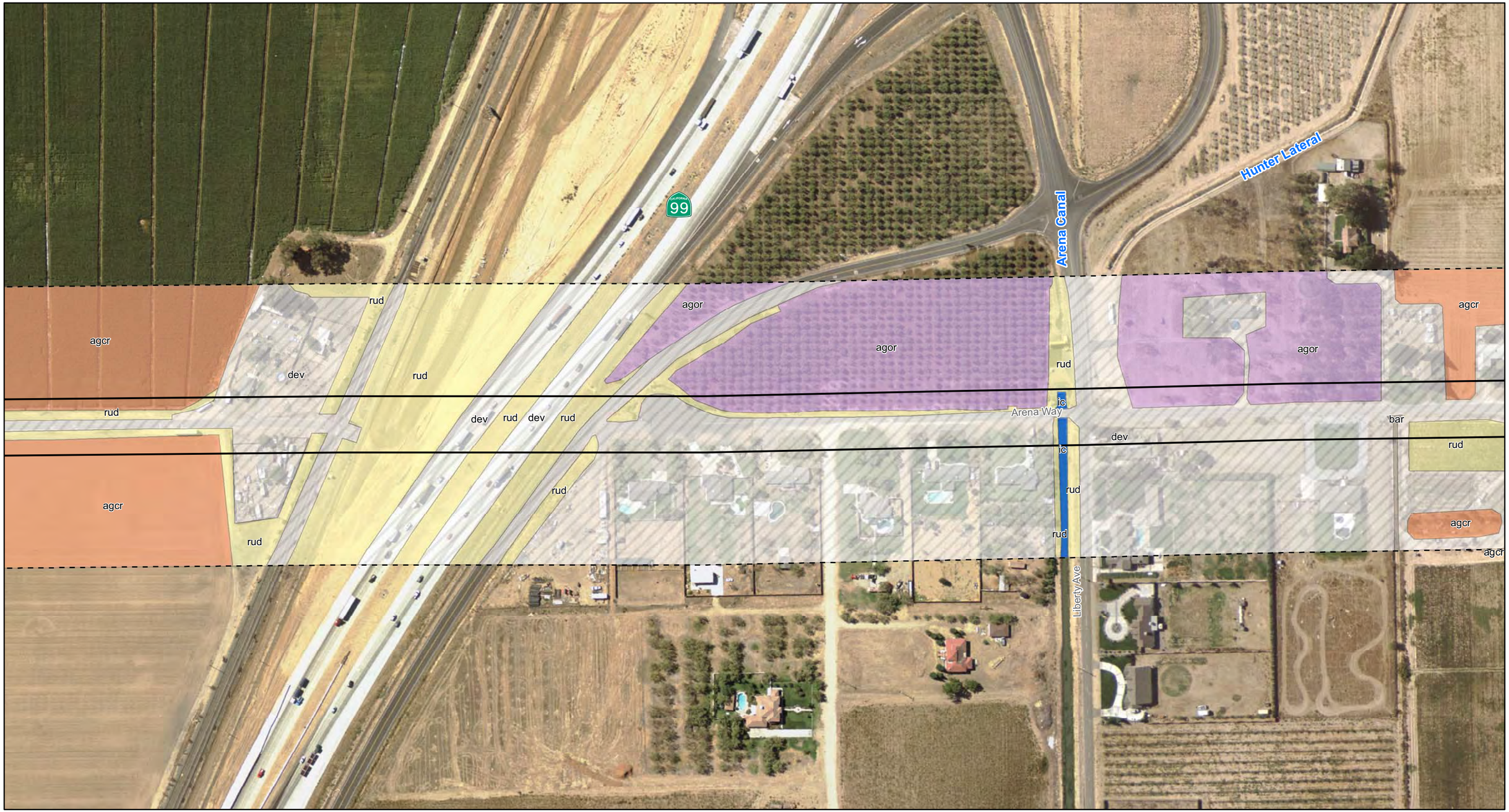


Figure 1: Habitat Assessment
Cressey-Gallo 115 kV Power Line Project
Map 14 of 25

0 100 200 Feet

N



Project Location

Cressey-Gallo 120 Foot Area of Direct Effects

Cressey-Gallo 600 Foot Area of Potential Indirect Effects

Substation

Do Not Access Parcel

Elderberry Bush with Stems Greater than 1 Inch

Elderberry Bush with Stems Less than 1 Inch

Vegetation and Landcover Types

- Annual Grassland (gs)
- Pastureland (agps)
- Orchard (agor)
- Vineyard (agvn)
- Other Cropland (agcr)
- Planted Trees (pt)
- Ruderal (rud)
- Developed/ Landscaped (dev)
- Irrigation Canal (ic)
- Ditch (d)
- Bare Ground (bar)

Wetland Types

- Irrigated Pasture (ip)
- Ponded Water (pw)
- Seasonal Ponded Area (spa)

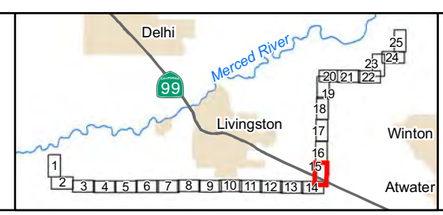


Figure 1: Habitat Assessment
Cressey-Gallo 115 kV Power Line Project
Map 15 of 25

0 100 200 Feet

N

agcr
agor
gs
agor
agcr
bar
agcr
agcr
agor
rud
rud
rud
rud
Arena Way
rud
rud
bar
rud
rud
rud
rud
agcr
bar
agor
agcr
dev
agor
agor
agor
agcr
bar

Cressey-Gallo 120 Foot
Area of Direct Effects

Cressey-Gallo 600 Foot
Area of Potential Indirect Effects

Substation

Do Not Access Parcel

Elderberry Bush with Stems Greater than 1 Inch

Elderberry Bush with Stems Less than 1 Inch

Vegetation and Landcover Types

- Annual Grassland (gs)
- Pastureland (agps)
- Orchard (agor)
- Vineyard (agvn)
- Other Cropland (agcr)
- Planted Trees (pt)
- Ruderal (rud)
- Developed/ Landscaped (dev)
- Irrigation Canal (ic)
- Ditch (d)
- Bare Ground (bar)

Wetland Types

- Irrigated Pasture (ip)
- Ponded Water (pw)
- Seasonal Ponded Area (spa)

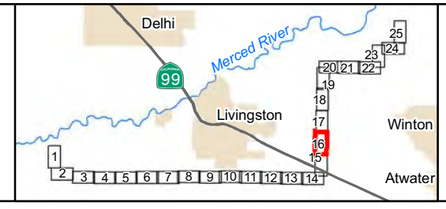


Figure 1: Habitat Assessment
Cressey-Gallo 115 kV
Power Line Project
Map 16 of 25

0 100 200 Feet

N

Cressey-Gallo 120 Foot Area of Direct Effects
Cressey-Gallo 600 Foot Area of Potential Indirect Effects
Substation
Do Not Access Parcel
Elderberry Bush with Stems Greater than 1 Inch
Elderberry Bush with Stems Less than 1 Inch

Vegetation and Landcover Types

- Annual Grassland (gs)
- Pastureland (agps)
- Orchard (agor)
- Vineyard (agvn)
- Other Cropland (agcr)
- Planted Trees (pt)
- Ruderal (rud)
- Developed/ Landscaped (dev)
- Irrigation Canal (ic)
- Ditch (d)
- Bare Ground (bar)

Wetland Types

- Irrigated Pasture (ip)
- Ponded Water (pw)
- Seasonal Ponded Area (spa)

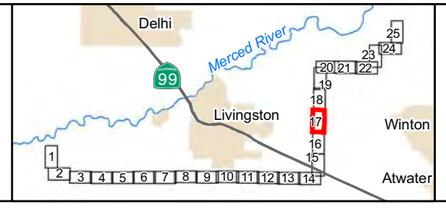


Figure 1: Habitat Assessment
Cressey-Gallo 115 kV Power Line Project
Map 17 of 25

0 100 200 Feet

N

Project Location

Cressey-Gallo 120 Foot Area of Direct Effects

Cressey-Gallo 600 Foot Area of Potential Indirect Effects

Substation

Do Not Access Parcel

Elderberry Bush with Stems Greater than 1 Inch

Elderberry Bush with Stems Less than 1 Inch

Vegetation and Landcover Types

- Annual Grassland (gs)
- Pastureland (agps)
- Orchard (agor)
- Vineyard (agvn)
- Other Cropland (agcr)
- Planted Trees (pt)
- Ruderal (rud)
- Developed/ Landscaped (dev)
- Irrigation Canal (ic)
- Ditch (d)
- Bare Ground (bar)

Wetland Types

- Irrigated Pasture (ip)
- Ponded Water (pw)
- Seasonal Ponded Area (spa)

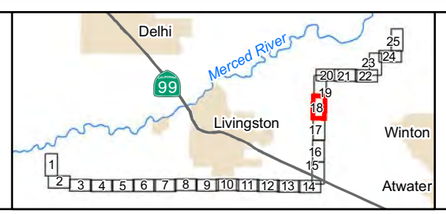


Figure 1: Habitat Assessment
Cressey-Gallo 115 kV Power Line Project
Map 18 of 25

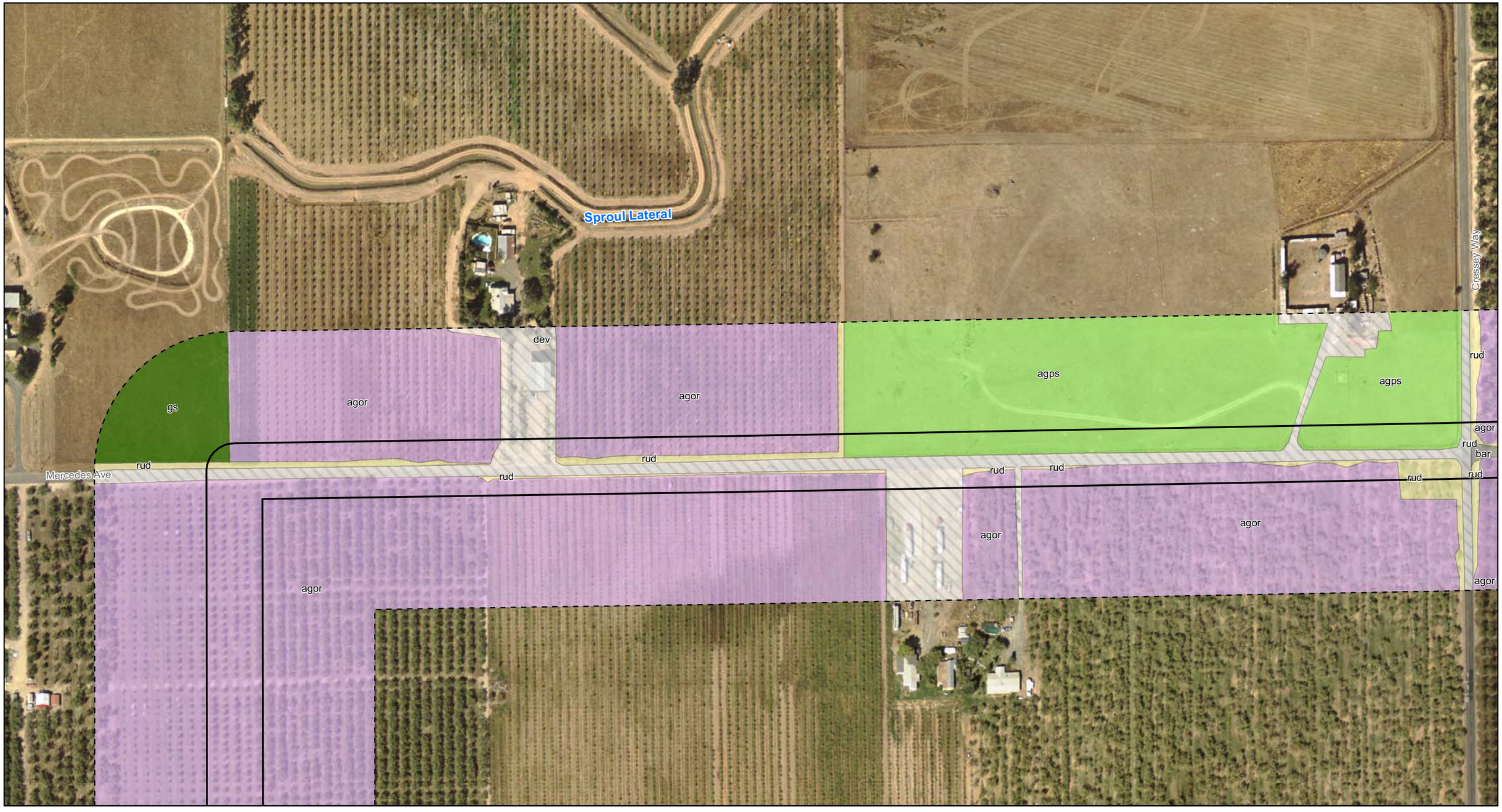
0 100 200 Feet

N

Figure 1: Habitat Assessment
Cressey-Gallo 115 kV
Power Line Project
Map 19 of 25

0 100 200 Feet

N



Project Location

- Cressey-Gallo 120 Foot Area of Direct Effects
- Cressey-Gallo 600 Foot Area of Potential Indirect Effects
- Substation
- Do Not Access Parcel
- Elderberry Bush with Stems Greater than 1 Inch
- Elderberry Bush with Stems Less than 1 Inch

Vegetation and Landcover Types

- Annual Grassland (gs)
- Pastureland (agps)
- Orchard (agor)
- Vineyard (agvn)
- Other Cropland (agcr)
- Planted Trees (pt)
- Ruderal (rud)
- Developed/ Landscaped (dev)
- Irrigation Canal (ic)
- Ditch (d)
- Bare Ground (bar)

Wetland Types

- Irrigated Pasture (ip)
- Ponded Water (pw)
- Seasonal Ponded Area (spa)

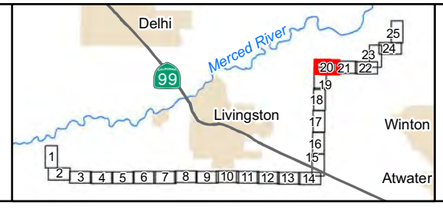
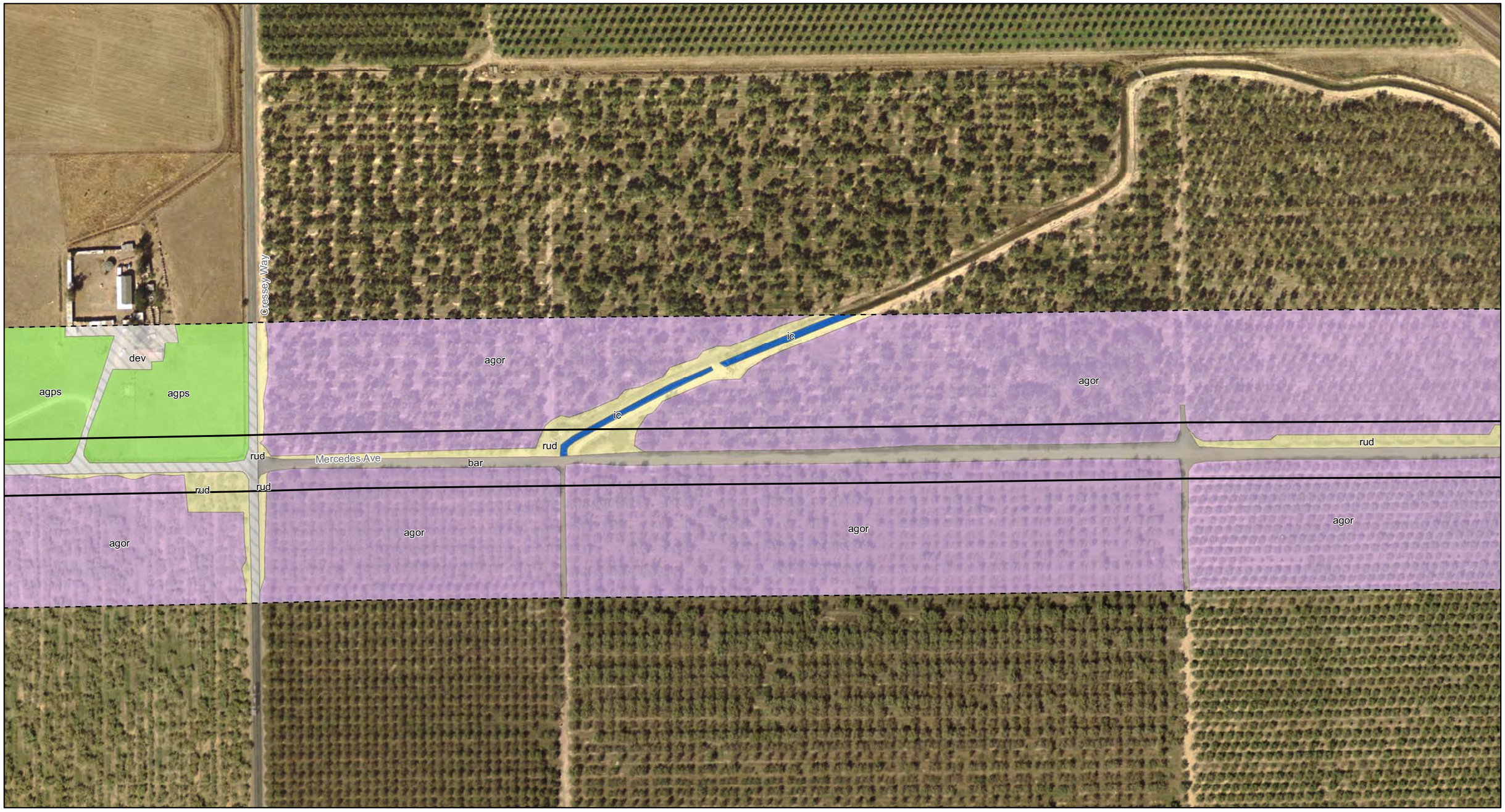


Figure 1: Habitat Assessment
Cressey-Gallo 115 kV Power Line Project
Map 20 of 25

0 100 200 Feet

N



Cressey-Gallo 120 Foot Area of Direct Effects

Cressey-Gallo 600 Foot Area of Potential Indirect Effects

Substation

Do Not Access Parcel

Elderberry Bush with Stems Greater than 1 Inch

Elderberry Bush with Stems Less than 1 Inch

Vegetation and Landcover Types

- Annual Grassland (gs)
- Pastureland (agps)
- Orchard (agor)
- Vineyard (agvn)
- Other Cropland (agcr)
- Planted Trees (pt)
- Ruderal (rud)
- Developed/ Landscaped (dev)
- Irrigation Canal (ic)
- Ditch (d)
- Bare Ground (bar)

Wetland Types

- Irrigated Pasture (ip)
- Ponded Water (pw)
- Seasonal Ponded Area (spa)

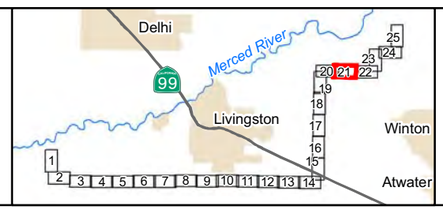
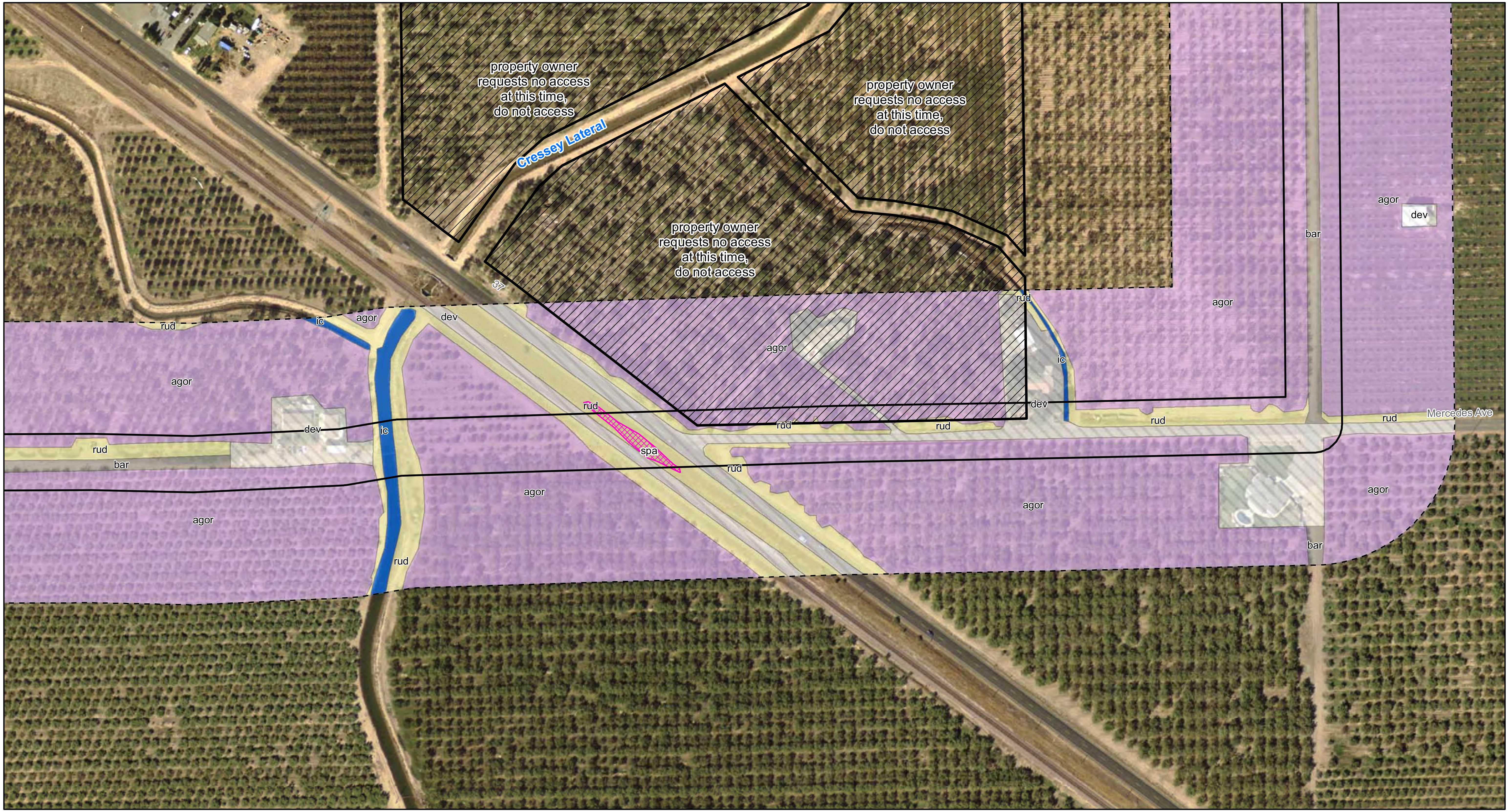


Figure 1: Habitat Assessment
Cressey-Gallo 115 kV
Power Line Project
Map 21 of 25

0 100 200 Feet

N



Cressey-Gallo 120 Foot Area of Direct Effects

Cressey-Gallo 600 Foot Area of Potential Indirect Effects

Substation

Do Not Access Parcel

Elderberry Bush with Stems Greater than 1 Inch

Elderberry Bush with Stems Less than 1 Inch

Vegetation and Landcover Types

Annual Grassland (gs)

Pastureland (agps)

Orchard (agor)

Vineyard (agvn)

Other Cropland (agcr)

Planted Trees (pt)

Ruderal (rud)

Developed/ Landscaped (dev)

Irrigation Canal (ic)

Ditch (d)

Bare Ground (bar)

Wetland Types

Irrigated Pasture (ip)

Ponded Water (pw)

Seasonal Ponded Area (spa)

Project Location

Delhi
Merced River
99
Livingston
Winton
Atwater

Figure 1: Habitat Assessment

Cressey-Gallo 115 kV Power Line Project

Map 22 of 25

0 100 200 Feet

N

property owner requests no access at this time, do not access

property owner requests no access at this time, do not access

property owner requests no access at this time, do not access

Cressey Lateral

Cressey Lateral

Palm Ave

agor

dev

rud

ic

bar

rud

ic

agor

agor

agor

rud

agps

spa

pw

spa

pw

dev

spa

agor

spa

agps

Project Location

Cressey-Gallo 120 Foot Area of Direct Effects

Cressey-Gallo 600 Foot Area of Potential Indirect Effects

Substation

Do Not Access Parcel

Elderberry Bush with Stems Greater than 1 Inch

Elderberry Bush with Stems Less than 1 Inch

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Wetland Types

Irrigated Pasture (ip)

Ponded Water (pw)

Seasonal Ponded Area (spa)

Delhi

Merced River

99

Livingston

Winton

Atwater

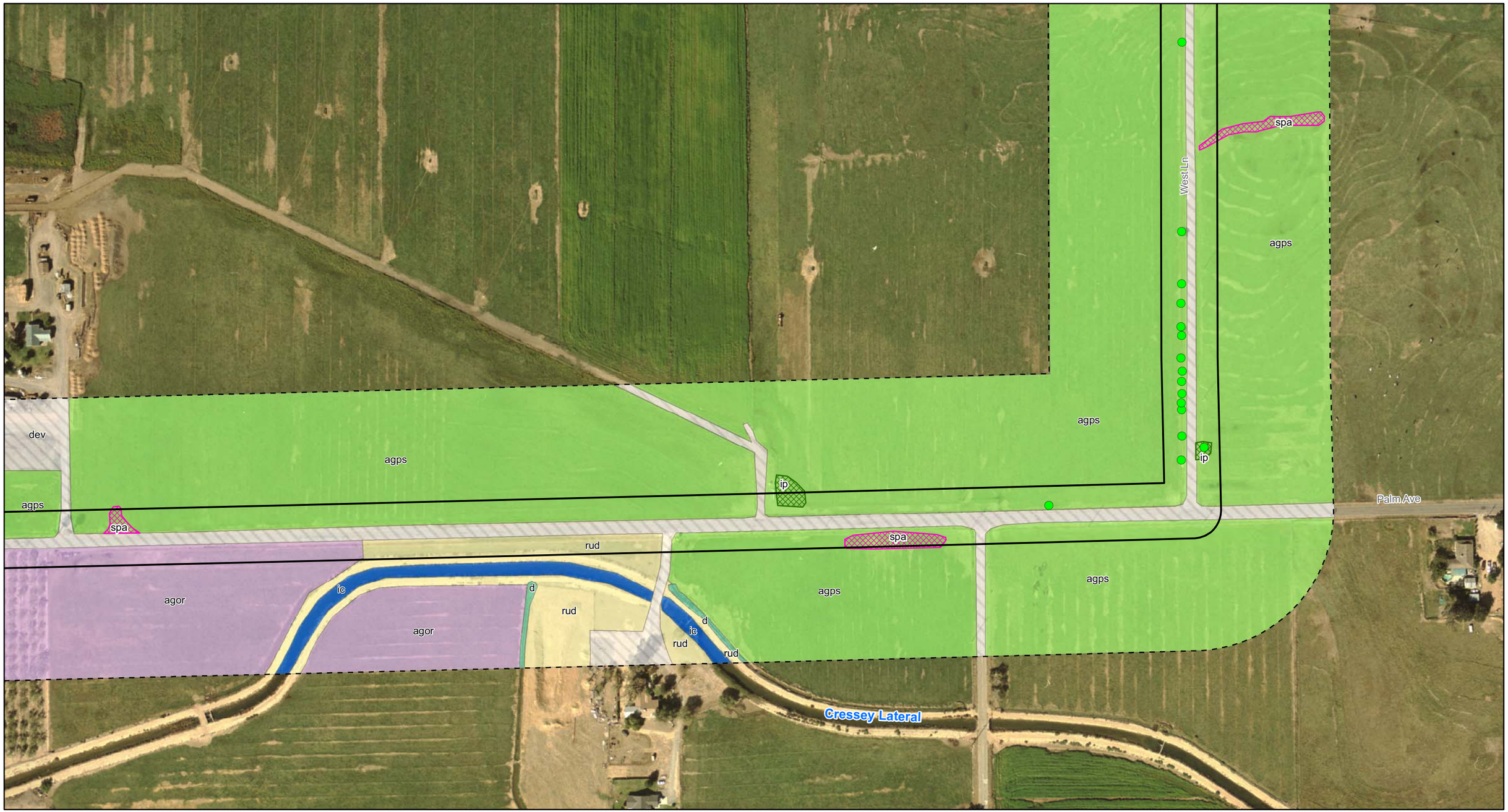
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

PG&E

Figure 1: Habitat Assessment
Cressey-Gallo 115 kV Power Line Project
Map 23 of 25

0 100 200 Feet

N



Cressey-Gallo 120 Foot Area of Direct Effects

Cressey-Gallo 600 Foot Area of Potential Indirect Effects

Substation

Do Not Access Parcel

Elderberry Bush with Stems Greater than 1 Inch

Elderberry Bush with Stems Less than 1 Inch

Vegetation and Landcover Types

- Annual Grassland (gs)
- Pastureland (agps)
- Orchard (agor)
- Vineyard (agvn)
- Other Cropland (agcr)
- Planted Trees (pt)
- Ruderal (rud)
- Developed/ Landscaped (dev)
- Irrigation Canal (ic)
- Ditch (d)
- Bare Ground (bar)

Wetland Types

- Irrigated Pasture (ip)
- Ponded Water (pw)
- Seasonal Ponded Area (spa)

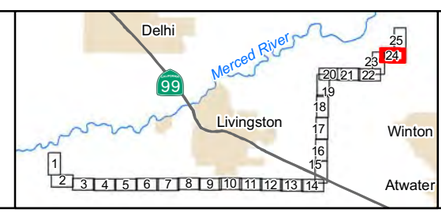
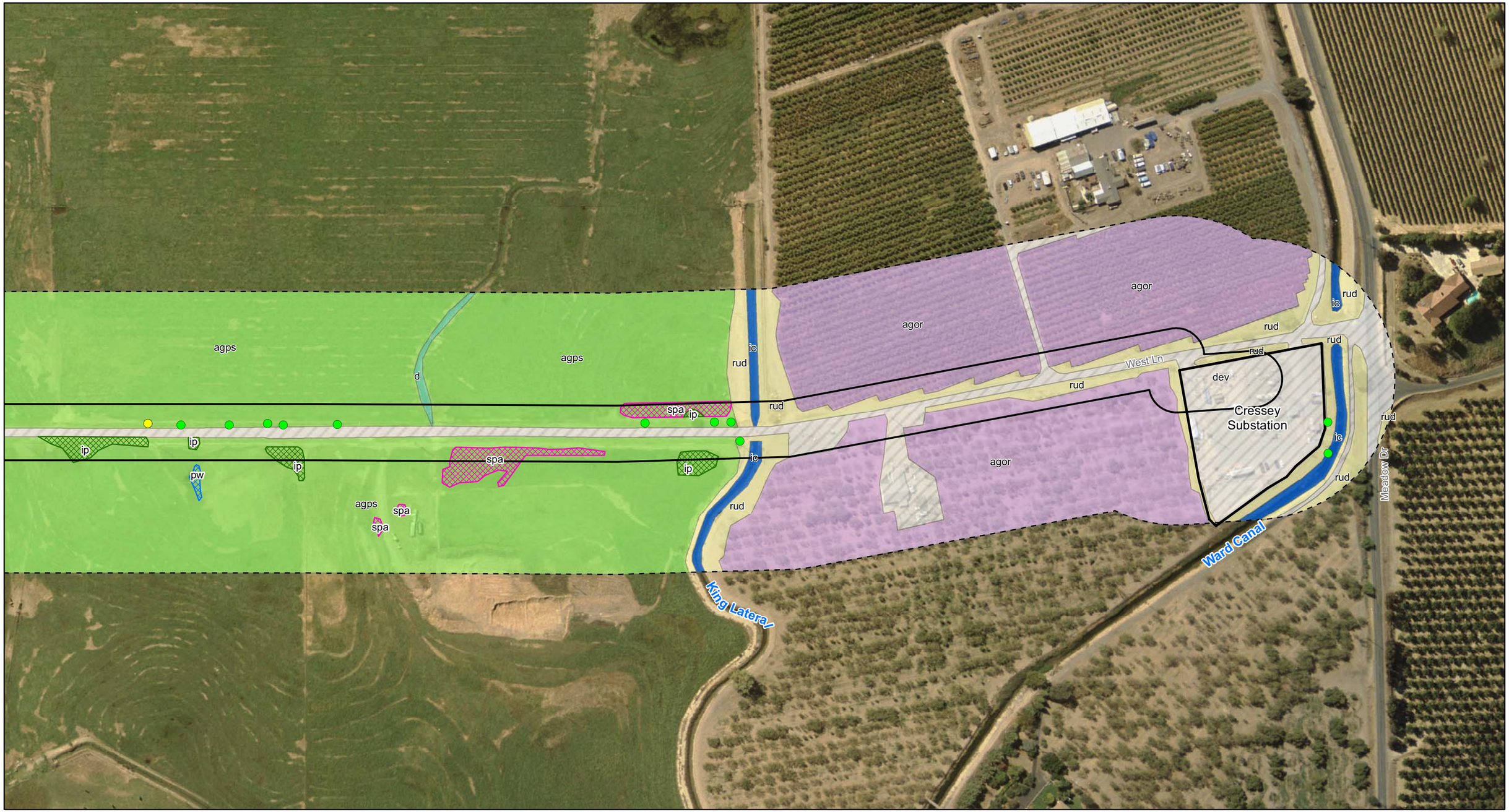


Figure 1: Habitat Assessment
Cressey-Gallo 115 kV
Power Line Project
Map 24 of 25

0 100 200 Feet

N



Project Location

- Cressey-Gallo 120 Foot Area of Direct Effects
- Cressey-Gallo 600 Foot Area of Potential Indirect Effects
- Substation
- Do Not Access Parcel
- Elderberry Bush with Stems Greater than 1 Inch
- Elderberry Bush with Stems Less than 1 Inch

Vegetation and Landcover Types

- Annual Grassland (gs)
- Pastureland (agps)
- Orchard (agor)
- Vineyard (agvn)
- Other Cropland (agcr)
- Planted Trees (pt)
- Ruderal (rud)
- Developed/ Landscaped (dev)
- Irrigation Canal (ic)
- Ditch (d)
- Bare Ground (bar)

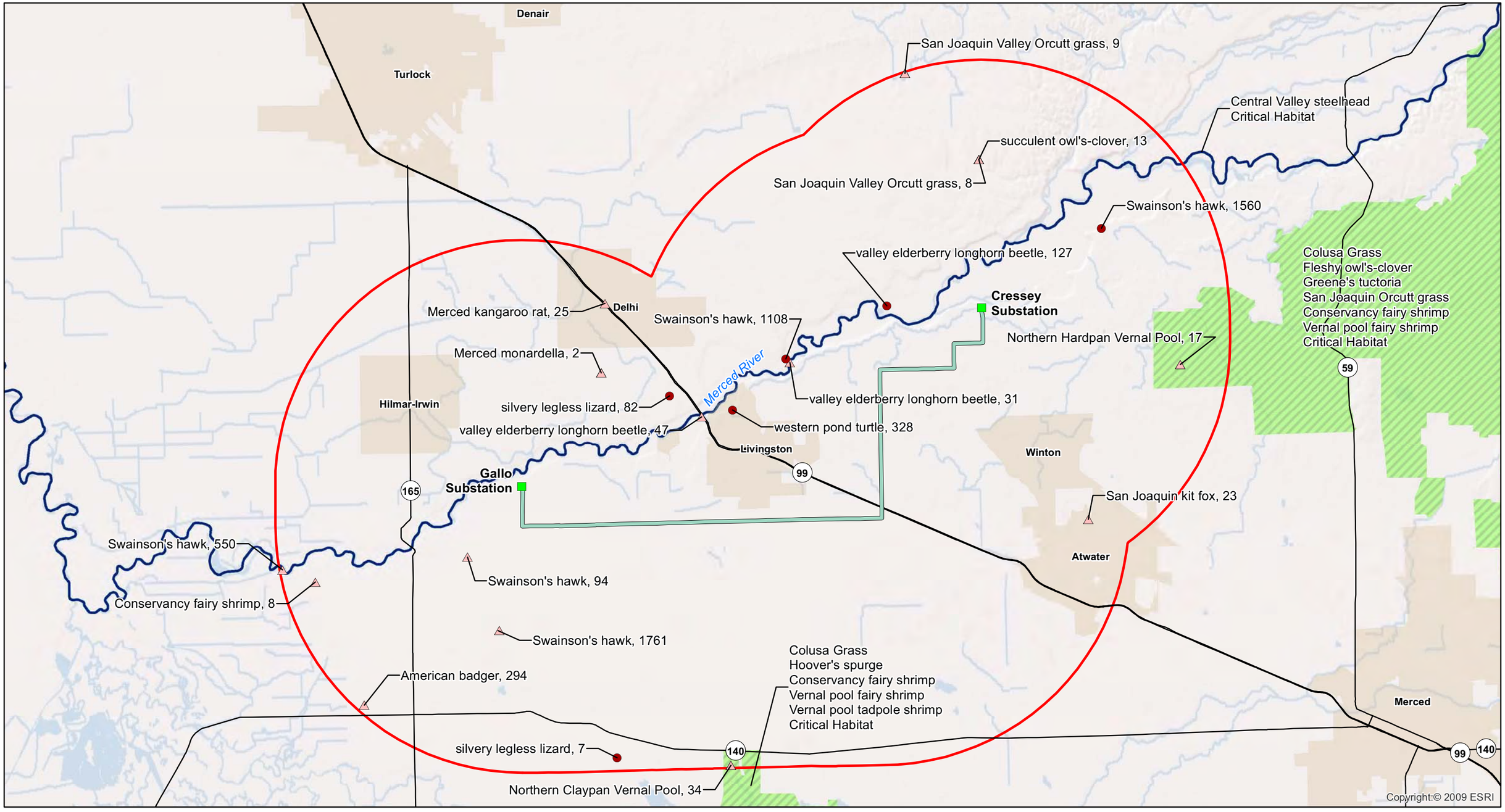
Wetland Types

- Irrigated Pasture (ip)
- Ponded Water (pw)
- Seasonal Ponded Area (spa)

Figure 1: Habitat Assessment
Cressey-Gallo 115 kV Power Line Project
Map 25 of 25

0 100 200 Feet

N



CNDDB Occurrence, Occurrence Number

- Specific Wildlife Occurrence (0 - 80 meter accuracy)
- Non-specific Wildlife Occurrence (Greater than 0.20 mile accuracy)
- Non-specific Plant Occurrence (Greater than 0.20 mile accuracy)
- Non-specific Sensitive Community Occurrence (Greater than 0.20 mile accuracy)

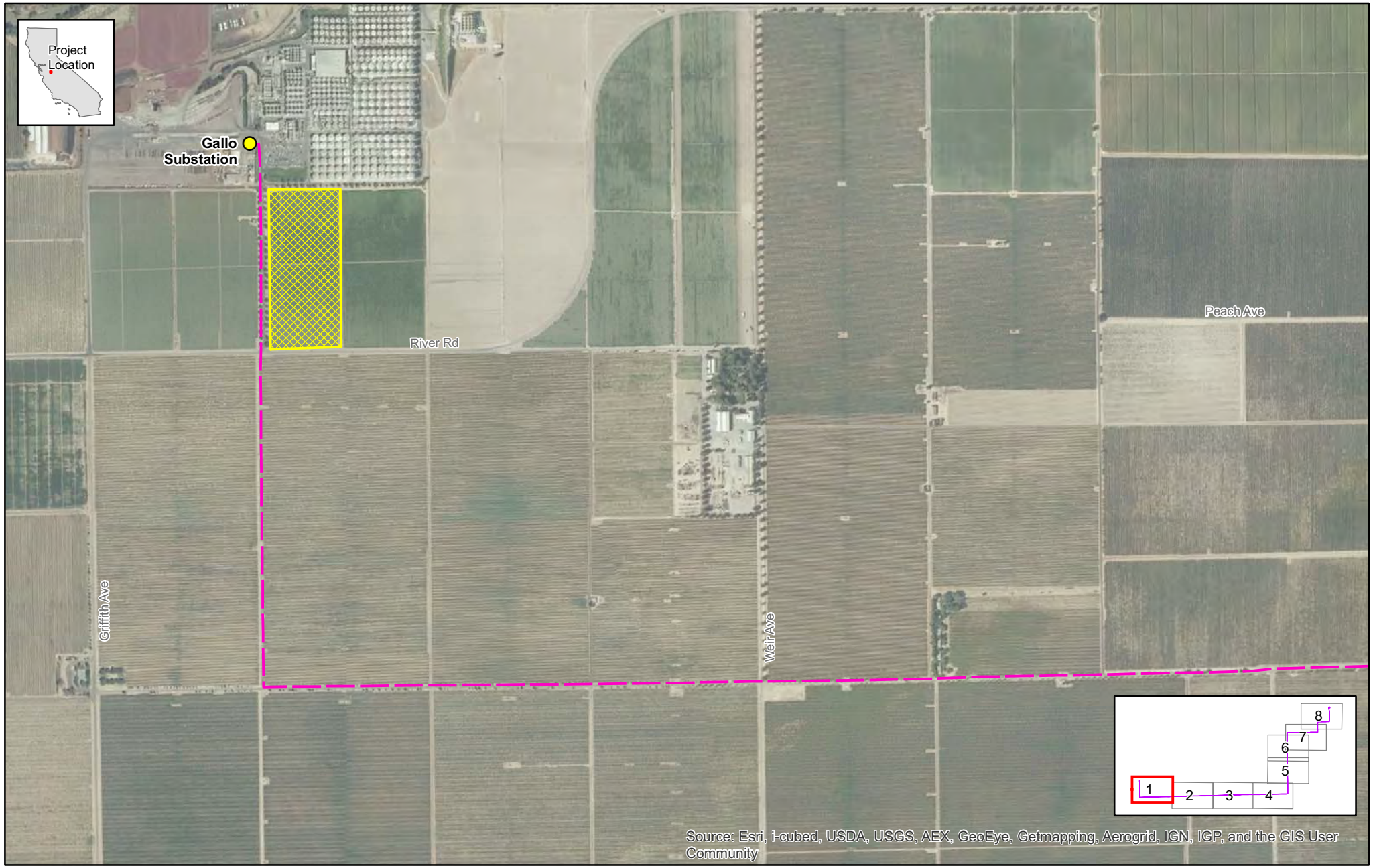
- Cressey-Gallo Power Line Route
- 5 Mile Buffer of the Power Line Route
- State Highway
- City Boundary

- Central Valley steelhead Critical Habitat
- Critical Habitat

Figure 2: CNDDB Occurrences Within 5 Miles of the Power Line Route
Cressey-Gallo 115 kV
Power Line Project

0 1 2 Miles

N



Cressey-Gallo Power Line Route

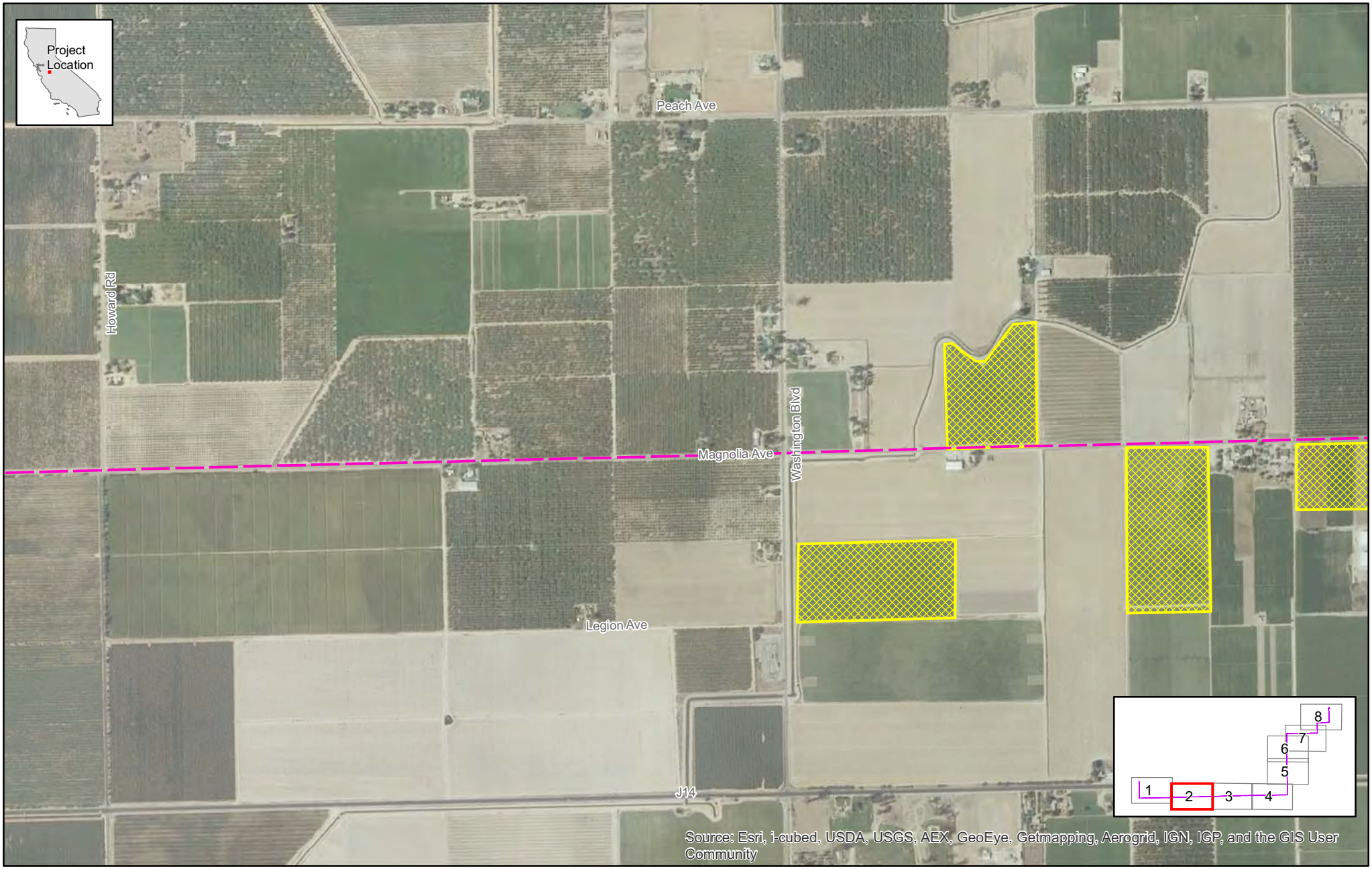
Potential Staging Locations

FIGURE 3 Map 1 of 8
Potential
Staging Locations
Cressey-Gallo 115 kV
Power Line Project

0 500 1,000 Feet

N

Scale:
1:12,000



Cressey-Gallo Power Line Route

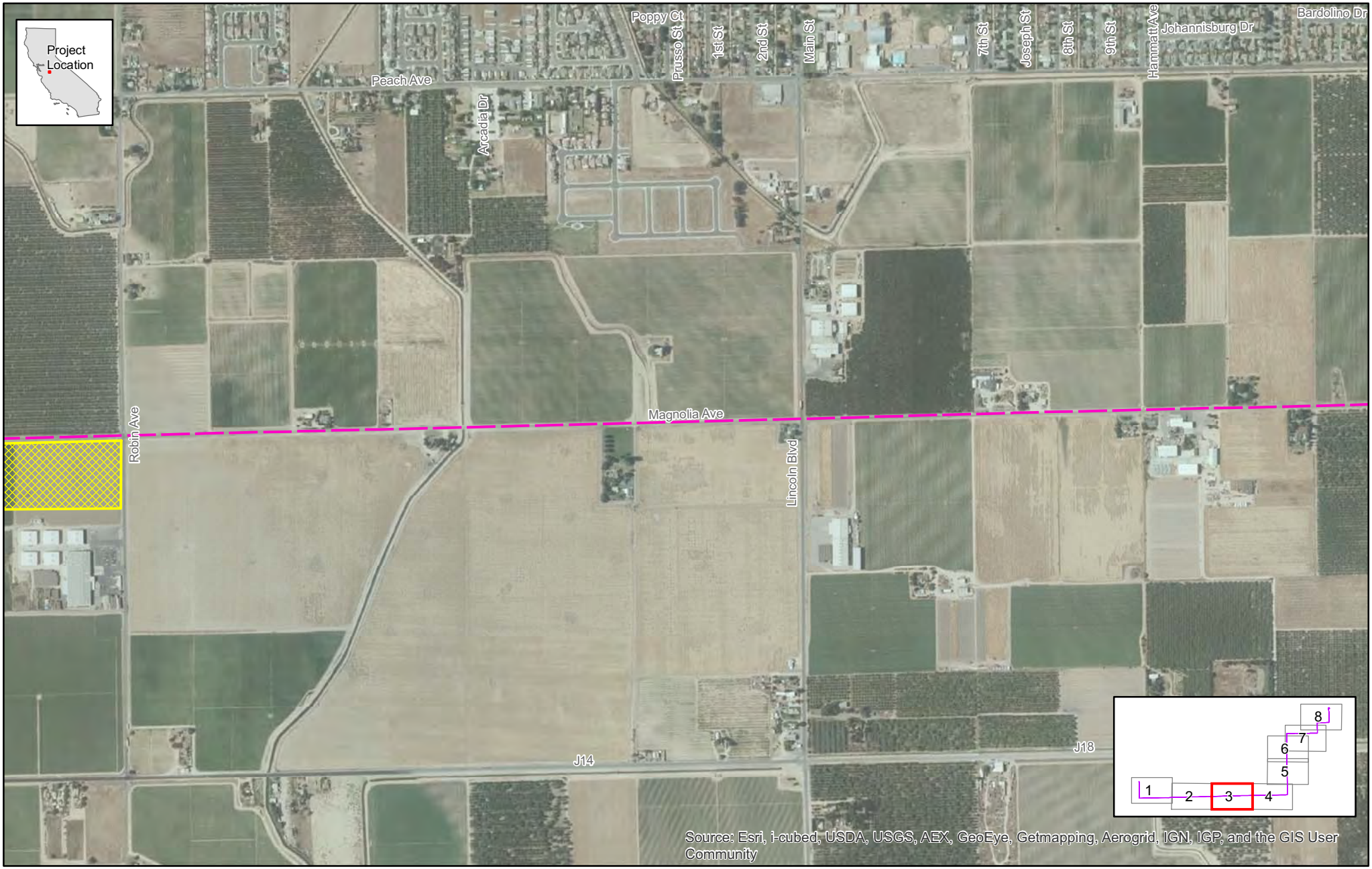
Potential Staging Locations

FIGURE 3 Map 2 of 8
Potential
Staging Locations
Cressey-Gallo 115 kV
Power Line Project

0 500 1,000 Feet

N

Scale:
1:12,000



Cressey-Gallo Power Line Route

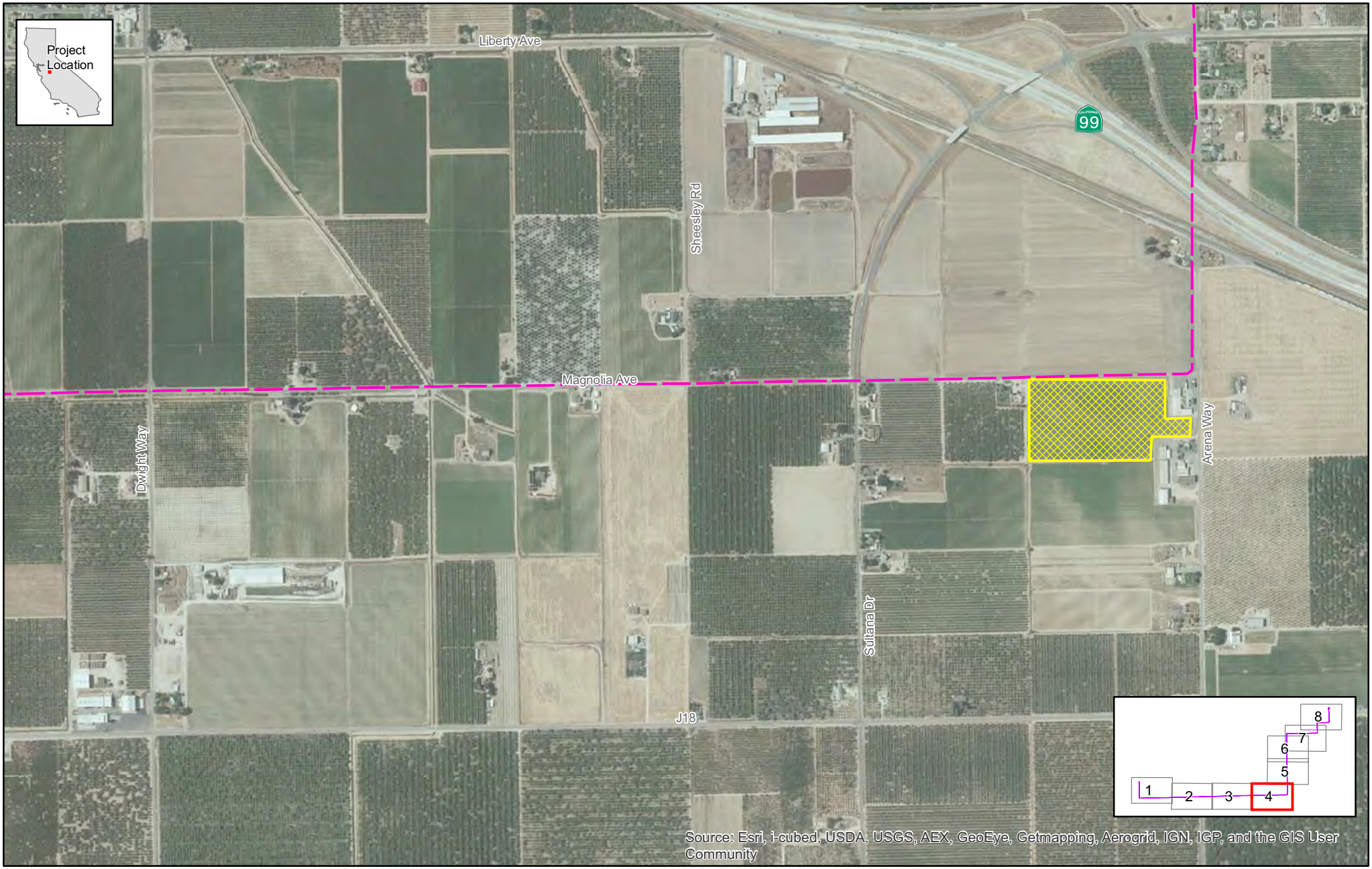
Potential Staging Locations

FIGURE 3 Map 3 of 8
Potential
Staging Locations
Cressey-Gallo 115 kV
Power Line Project

0 500 1,000 Feet

N

Scale:
1:12,000



Cressey-Gallo Power Line Route

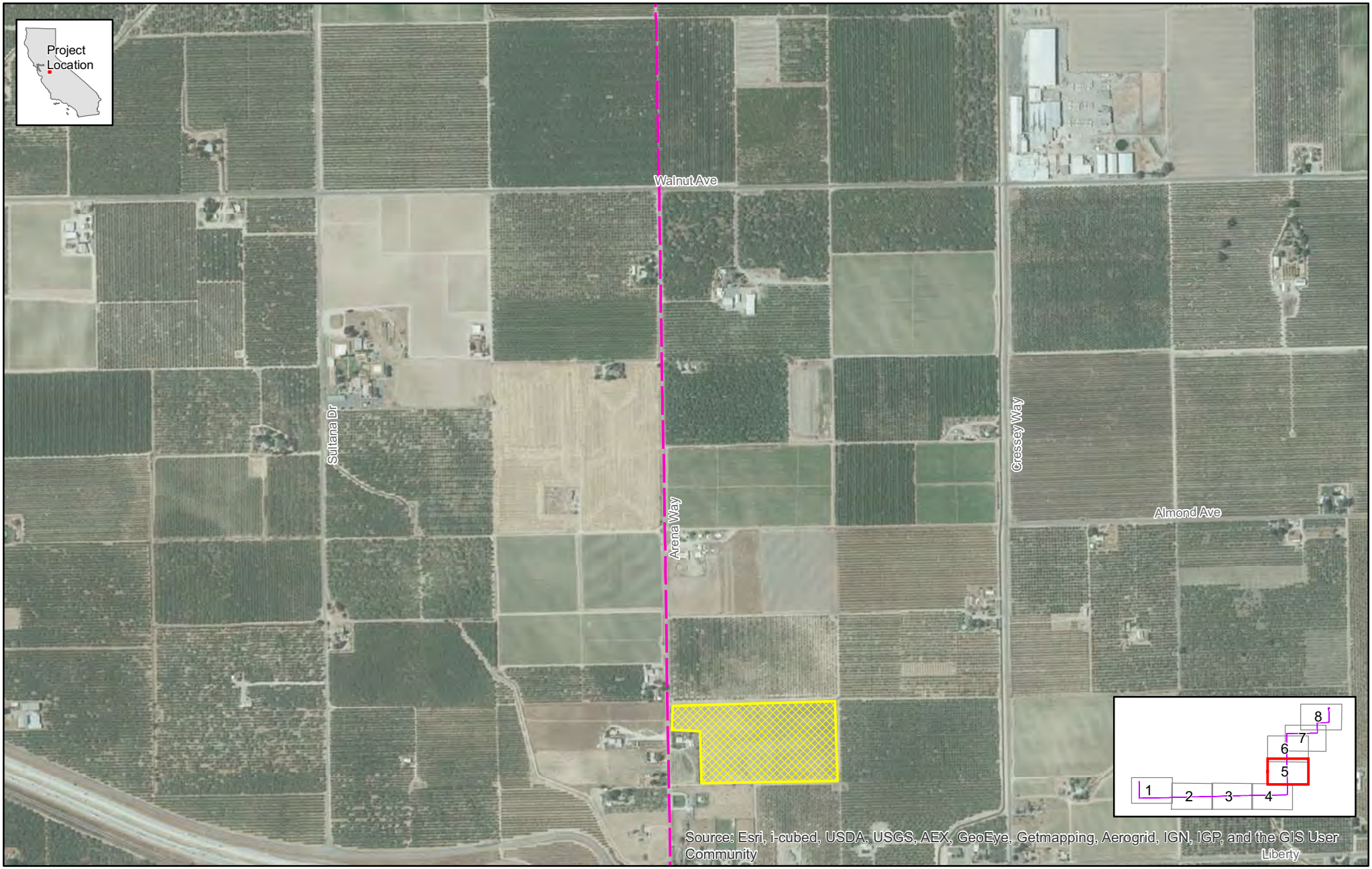
Potential Staging Locations

FIGURE 3 Map 4 of 8
Potential
Staging Locations
Cressey-Gallo 115 kV
Power Line Project

0 500 1,000 Feet

N

Scale:
1:12,000



Cressey-Gallo Power Line Route

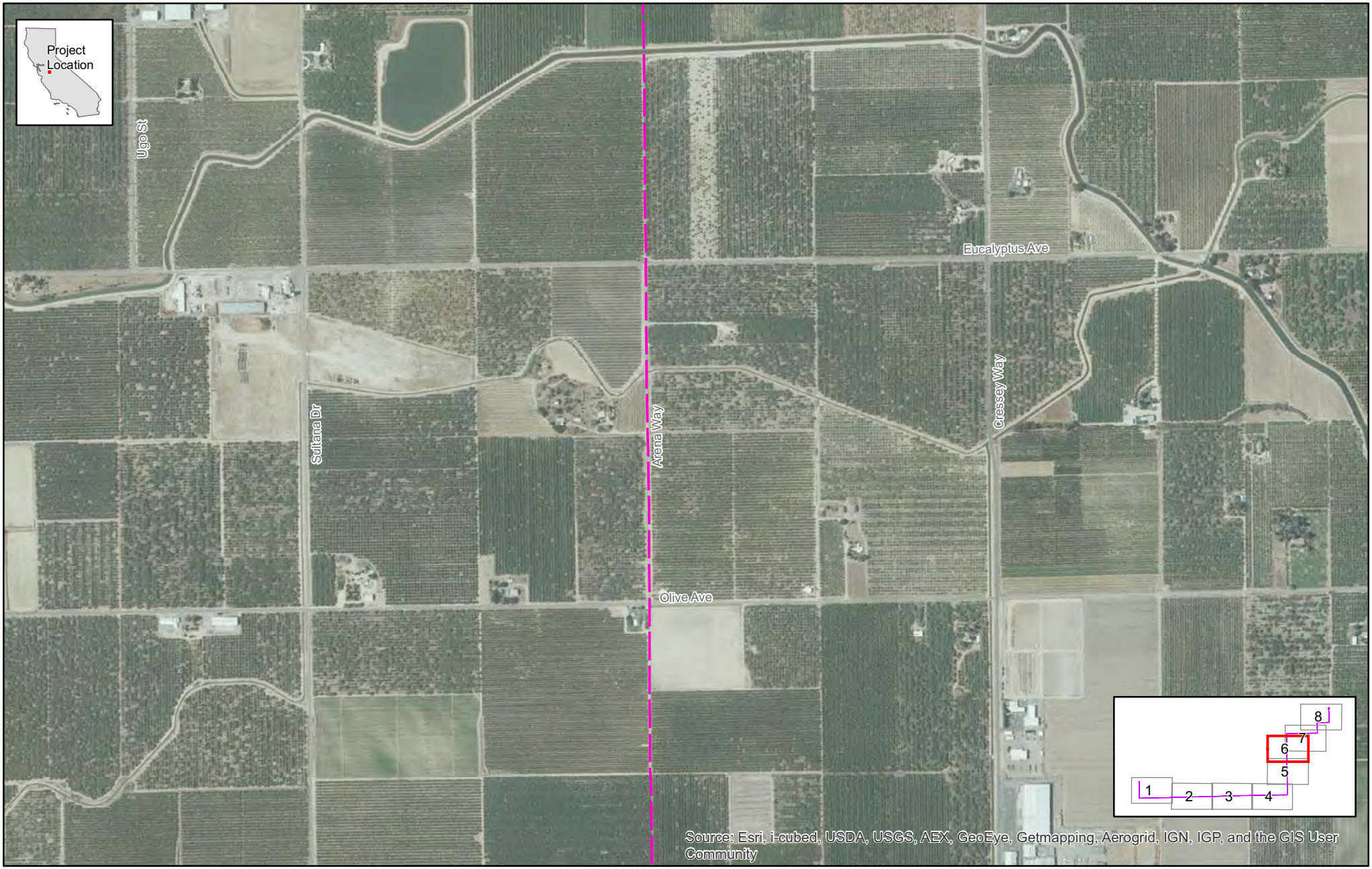
Potential Staging Locations

FIGURE 3 Map 5 of 8
Potential
Staging Locations
Cressey-Gallo 115 kV
Power Line Project

0 500 1,000 Feet

N

Scale:
1:12,000



Cressey-Gallo Power Line Route

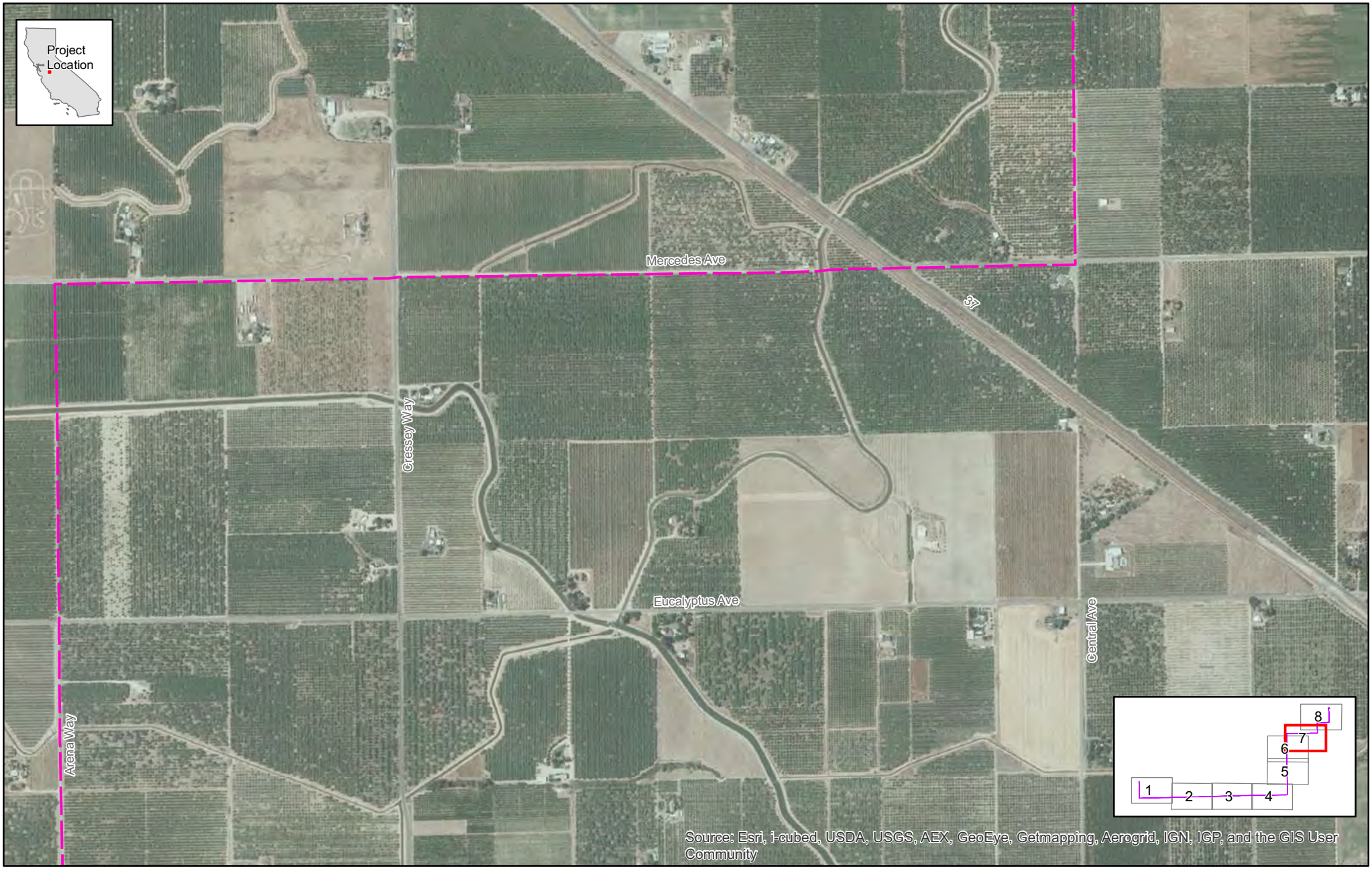
Potential Staging Locations

FIGURE 3 Map 6 of 8
Potential
Staging Locations
Cressey-Gallo 115 kV
Power Line Project

0 500 1,000 Feet

N

Scale:
1:12,000



Cressey-Gallo Power Line Route

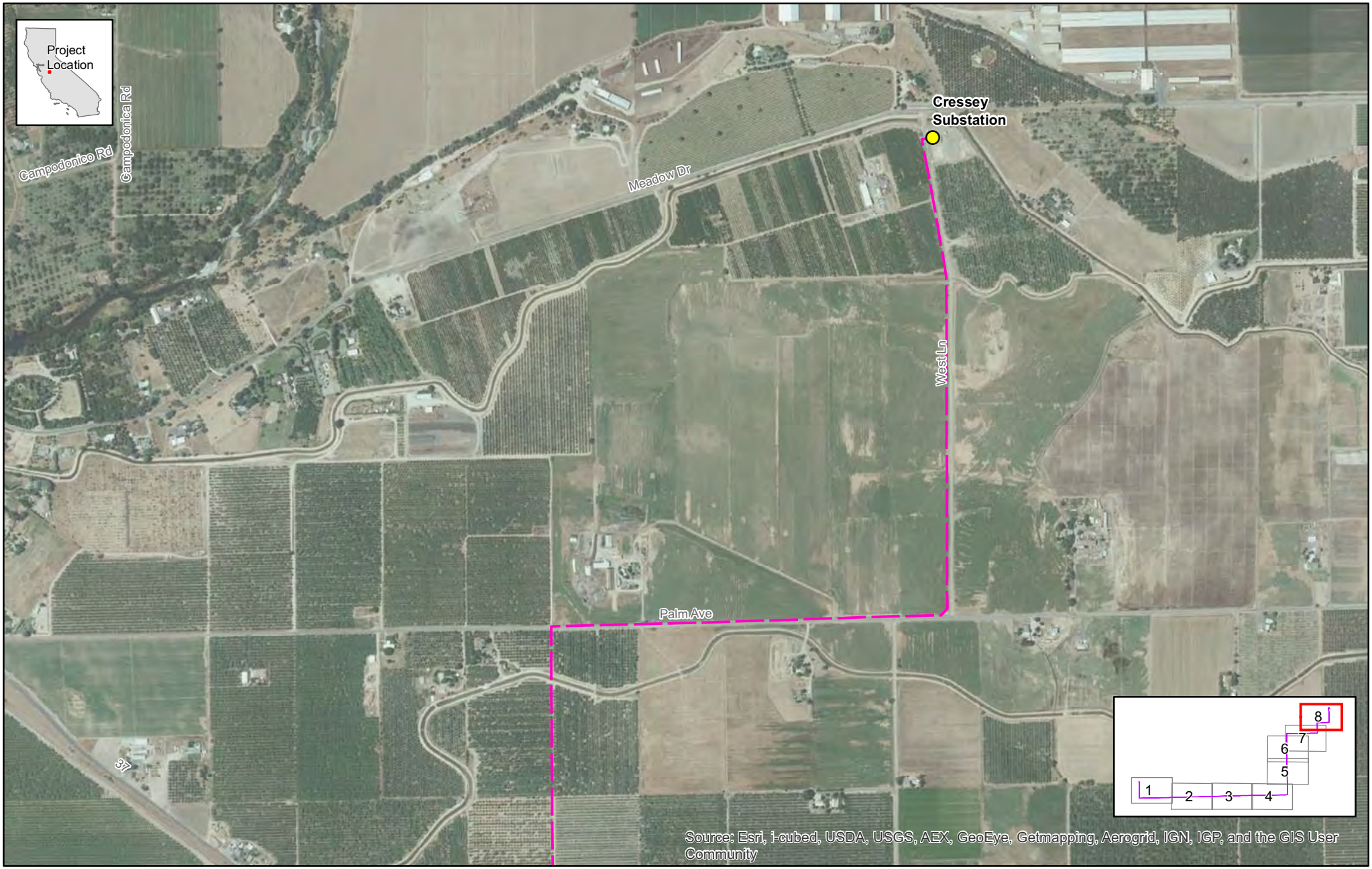
Potential Staging Locations

FIGURE 3 Map 7 of 8
Potential
Staging Locations
Cressey-Gallo 115 kV
Power Line Project

0 500 1,000 Feet

N

Scale:
1:12,000



Cressey-Gallo Power Line Route

Potential Staging Locations

FIGURE 3 Map 8 of 8
Potential
Staging Locations
Cressey-Gallo 115 kV
Power Line Project

0 500 1,000 Feet

N

Scale:
1:12,000