

MEMORANDUM

To: Patrick Brown, Soitec Development LLC
From: David Hochart, Dudek
Subject: Evaluation of Biological Resources for the Soitec Mitigation Site
Date: November 21, 2013
cc: Brock Ortega, Dudek
Vipul Joshi, Dudek
Attachment(s): Figures 1–4

Soitec Development LLC is considering the purchase of 2,601.3 acres of open space (i.e., Soitec mitigation site) to satisfy habitat loss mitigation requirements for the development of solar facilities on properties located within the vicinity. The mitigation site, and the four solar farm sites, Tierra del Sol, Rugged LanEast and LanWest, are located within the unincorporated community of Boulevard, California (Figures 1 and 2). The mitigation site will serve as mitigation for the four solar farm projects. However, impacts have only been evaluated for the Tierra del Sol and Rugged sites; impacts for the LanEast and LanWest solar farms will be analyzed at a later date because neither project has been fully developed to a project-level of detail at this time. It is presumed that there will be sufficient habitat and resources available to mitigate for impacts on the LanEast and LanWest solar sites. Impacts for these sites will be evaluated prior to construction.

In order to locate and characterize natural communities, including habitats for special-status species within the mitigation site, Dudek conducted vegetation mapping in accordance with the County of San Diego Report Format and Content Requirements (County of San Diego 2010a). This memo provides the results of the vegetation mapping and outlines the potential for special-status plant and wildlife species to occur within the mitigation site.

ENVIRONMENTAL SETTING (EXISTING CONDITIONS)

The mitigation site is situated between approximately 3,240 to 4,080 feet above mean sea level (amsl) in elevation. Land use on site, and in the surrounding areas, is a mixture of open space and rural residential areas. A portion of the mitigation land site borders Mexico and is separated by the border fence. The site is bisected by railroad tracks that are no longer in use. The western portion of the mitigation lands, just north of the train tracks, contains a large rock outcrop which

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is the highest peak of the property and contains limited vegetation. The remaining portions of the project contain gently rolling hills with several low points that indicate signs of water flow, i.e., potential drainages. Several of the larger potential drainages have artificial impoundments (e.g., berms and basins), most of which are dry at the time of the survey. During the site visits two areas contained water: a small area located within the center of the site, just south of the railroad tracks, and Lake Domingo which is located in the southeastern corner of the site. The mitigation site is generally within the Peninsular Range in a transitional area between the coast and the desert. It is in a dry climate with average temperatures near the community of Campo ranging from approximately 34–94°F. This community generally receives an average rainfall of less than 15 inches per year (Western Regional Climate Center 2013).

According to USDA (2013), there are four soil types found in the project area, and descriptions based on those by Bowman (1973) and the Web Soil Survey appear as follows.

Acid igneous rock land soil is found in rough broken terrain. The topography ranges from low hills to steep mountains. Large boulders and rock outcrops of granite, quartz diorite, gabbro, basalt, and other rock types cover greater than 50% of the total area of this soil type. The soil material is very shallow consisting of loam to loamy coarse sand textures over decomposed granite or basic igneous rock. In some locales, pockets of deep soils may be present between the rocks. Many areas are practically barren and have very rapid runoff. The vegetation for this soil type varies by elevation and climate. In the foothills and mountains, acid igneous rock land supports various chaparral vegetation communities. On site, the mapping of this soil coincides with the large rock outcrop located within the western portion of the site, just north of the railroad tracks.

The La Posta series has grayish brown and brown, slightly acid and neutral, loamy coarse sand A horizons, grading to weathered acid igneous rock at a depth of 29 inches. These soils occur in hilly mountainous areas that are moderately sloping to very steep. The following La Posta soil inclusions occur within the project area: La Posta loamy coarse sand, 5–30% slopes, eroded; and La Posta rocky loamy coarse sand, 5–30% slopes, eroded. The soils formed in residuum weathered from granitic rocks at elevations of 2,000 to 4,500 feet. La Posta soils are somewhat excessively drained with medium or rapid runoff and rapid permeability, and native vegetation expected on this soil type in the project area is mainly annual grasses and forbs, chamise (*Adenostoma fasciculatum*), red shank (*Adenostoma sparsifolia*), manzanita (*Arctostaphylos* spp.), scrub oak (*Quercus* spp.), and a few scattered oak trees (*Quercus agrifolia*) along drainages.

The Mottsville series consists of very deep, excessively drained soils that formed in alluvium derived from granitic rocks. Mottsville soils occur on gently sloping (0–15%) alluvial fans, fan

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remnants, and fan aprons. Mottsville soil inclusion occurs within the project area: Mottsville loamy coarse sand, 2–9% slopes. Mottsville soils occur at elevations of 4,500–5,300 feet. Mottsville soils have negligible or very low surface runoff, rapid or very rapid permeability, and high saturated hydraulic conductivity. Native vegetation expected on this soil type within the project area is mainly big sagebrush (*Artemisia tridentata* ssp. *tridentata*), other desert transition shrubs, and needlegrasses (*Stipa* spp.).

The Tollhouse series consists of shallow, somewhat excessively or excessively drained soils that formed in material weathered from granite and closely related coarse crystalline rocks. The following Tollhouse soil inclusion occurs within the project area: Tollhouse rocky, coarse sandy loam, 5–30% slopes, eroded; and Tollhouse rocky, coarse sandy loam, 30–65% slopes. Tollhouse soils are on strongly sloping to very steep mountain slopes. Rock outcrops are common to many soils of this series. Tollhouse soils occur at elevations of 650 to about 8,000 feet. Native vegetation expected on this soil type within the project area is primarily chaparral consisting of a variety of native shrubs and oak trees. Naturalized grasses and forbs may occur in some locations.

METHODS

Between February 2013 and September 2013, Dudek conducted vegetation mapping and rare plant surveys for the mitigation lands. Dudek biologists conducted vegetation mapping for 8 days in February, conducted surveys for desert beauty (*Linanthus bellus*) and Jacumba milk-vetch (*Astragalus douglasii* var. *perstrictus*) for 5 days in April, conducted surveys for sticky geraea (*Geraea viscida*) and Jacumba milk-vetch for 13 days in June, and conducted surveys for Tecate tarplant (*Deinandra floribunda*) for 8 days in September.

Focused Plant Surveys

Focused surveys for special-status plants were implemented in three separate passes, spring summer, and fall to record species that have different blooming periods throughout the year. During these surveys, all plant species encountered during the field surveys were identified and recorded. Latin and common names for plant species with a California Rare Plant Rank (CRPR; formerly CNPS List) follow the *California Native Plant Society On-Line Inventory of Rare, Threatened, and Endangered Plants of California* (CNPS 2013). For plant species without a CRPR, Latin names follow the *Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California* (Jepson Flora Project 2012) and common names follow the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service Plants Database (USDA 2012).

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Targeted survey methods for special-status plant species identified specific areas within the proposed mitigation lands that would be more likely to support these species. Survey areas were selected for the spring and summer pass to exclude areas mapped in the soil survey as acid igneous rock, partially based on the lack of species occurrence within this soil mapping area on the Rugged and Tierra del Sol sites. Survey areas were selected for the fall pass to include areas that contained U.S. Geology Survey (USGS) National Hydrography Dataset (NHD) information based on the presence of Tecate tarplant within drainages on the Rugged and Tierra del Sol sites. Due to the limited duration of the spring survey season, only Survey Areas 2, 4, and 5 (approximately 800 acres) were surveyed. During the summer season, all five Survey Areas were surveyed (approximately 1,100 acres).

In accordance with survey methods for the Rugged and portions of the Tierra del Sol project areas, numbers of special-status plant species individuals were counted in the field and reported as ranges including the following: 1 to 10; 11 to 50; 51 to 100; 101 to 500; 501 to 1,000; 1,001 to 5,000; and greater than 10,000. Point data were collected for each occurrence; no polygon data was collected.

Resource Mapping

Vegetation communities and land uses on and within 100 feet of the site were mapped in the field directly onto a 200-foot-scale (1 inch = 200 feet), aerial photograph–based field map of the mitigation site. Following completion of the fieldwork, all vegetation polygons were transferred to a topographic base and digitized using ArcGIS and a geographic information system (GIS) coverage was created. Once in ArcGIS, the acreage of each vegetation community and land cover present on site was determined.

Consistent with the latest County of San Diego *Report Format and Content Requirements: Biological Resources* (County of San Diego 2010a), vegetation community classifications used in this report follow Holland (1986) and Oberbauer et al. (2008), where feasible, with modifications to accommodate the lack of conformity of the observed communities to those of Holland (1986) or Oberbauer et al. (2008).

Survey Limitations

Over the past three water years, average rainfall within the mitigation site and associated project areas has steadily declined. The nearest weather station is located in Campo, California, and generally receives an average rainfall of approximately 15 inches per year (Western Regional Climate Center 2013). Precipitation water year (i.e., July 1 to June 30) amounts for Campo from

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2010 to 2011 were recorded at 21.03 inches, from 2011 to 2012 were recorded at 15.84 inches, and from 2012 to 2013 were recorded at 11.21 inches.

Reference population checks were completed for each of the target species prior to conducting focused survey passes. Since annual plant species populations can fluctuate from year to year depending on a variety of conditions, including rainfall, the reference check for desert beauty also included a comparison of population numbers. A reference check of desert beauty was conducted within the Rugged and Tierra del Sol sites on April 4, 2013. A total of 4 locations where desert beauty was mapped in 2011 on the Rugged site were re-surveyed in 2013. Three of the locations had fewer desert beauty individuals than previously recorded (between 30–90% reduction) and one location had a greater number of individuals (approximately 200% increase). Overall it is estimated that the 2013 population was approximately 70% less than the population size recorded in 2011 at the Rugged site. On the Tierra del Sol site, the 2013 reference survey identified only one individual within four selected sites that had a total of 314 individuals recorded in 2012. These reference site surveys indicate that the population size of desert beauty recorded within the mitigation lands in spring 2013 is likely lower than what would be present during an average rainfall year.

A reference survey for Jacumba milk-vetch and sticky geraea was conducted within the Rugged site on June 14, 2013, and confirmed that these species were blooming and identifiable. Because these species are perennial, the number of individual is not expected to vary greatly from year to year and therefore population counts were not recorded for comparison with previous year counts.

A reference check of Tecate tarplant was conducted within the Rugged and Tierra del Sol sites on September 23, 2013. A total of two locations where Tecate tarplant was mapped in 2011 on the Rugged site were re-surveyed in 2013. Both of the locations had fewer Tecate tarplant individuals than previously recorded (between 99–100% reduction). Overall it is estimated that the 2013 population was less than the population size recorded in 2011 at the Rugged site. On the Tierra del Sol site, the 2013 reference survey identified only three individuals within 11 selected sites that had a total of 3,029 individuals recorded in 2012. These reference site surveys indicate that the population size of Tecate tarplant recorded within the mitigation lands in fall 2013 is likely lower than what would be present during an average rainfall year.

Focused surveys for special-status wildlife species, wintering raptors, and reptile/small mammal trapping were not conducted for the mitigation lands. Nocturnal surveys were not conducted for the project. Birds represent the largest component of the vertebrate fauna, and because most are active in the daytime, diurnal surveys maximize the number of observations of this portion of the fauna. In contrast, daytime surveys usually result in few observations of mammals, many of

which may be active at night. In addition, many species of reptiles and amphibians are nocturnal or cryptic in their habits and are difficult to observe using standard meandering transects. Wildlife occurrence data is based largely on previous bird count surveys conducted for the Jewel Valley area (Dudek 2012), with other species noted incidentally during vegetation mapping or focused plant surveys.

Approximately 206 acres of the mitigation lands were burned during the 2012 Shockey Fire. These areas were mapped per the County Guidelines which state: “Areas recovering from fire shall be mapped using the resurgent vegetation as indicators of the probable resultant habitat. When the fire is so recent that no new vegetation has emerged, historical evidence such as aerial photos and the County’s vegetation mapping information shall be used to map the habitat that was burned” (County of San Diego 2010b).

Habitat Types/Vegetation Communities

Twenty vegetation communities or land covers were mapped by Dudek within the project site. Native vegetation communities on site include big sagebrush scrub, granitic chamise chaparral, montane buckwheat scrub, red shank chaparral (including disturbed), red shank chaparral-rock, red shank chaparral/montane buckwheat scrub, granitic northern mixed chaparral, granitic northern mixed chaparral-rock, granitic northern mixed chaparral/montane buckwheat scrub, scrub oak chaparral, coast live oak woodland, southern coast live oak riparian forest, riparian habitat, and alkali meadow. One non-native vegetation community, non-native grassland, and four land cover types (non-vegetated areas), open water, rock outcrops disturbed land, and urban/developed also occur within the mitigation site. These vegetation communities and land cover types are described as follows, their acreages are presented in Table 1, and their spatial distributions are presented on Figures 3a-e.

In September 2010, the CDFG published the *List of California Vegetation Alliances and Associations* (CDFG 2010), which uses the scientific name of the dominant species in that alliance as the alliance name and includes a global and state rarity rank based on the NatureServe Standard Heritage Program methodology (NatureServe 2013). The conservation status of a vegetation community is designated by a number from 1 to 5, preceded by a letter reflecting the appropriate geographic scale of the assessment (G = global, N = national, and S = subnational). The numbers have the following meaning (NatureServe 2013):

- 1 = critically imperiled
- 2 = imperiled
- 3 = vulnerable to extirpation or extinction
- 4 = apparently secure
- 5 = demonstrably widespread, abundant, and secure.

For example, G1 would indicate that a vegetation community is critically imperiled across its entire range (i.e., globally). A rank of S3 would indicate the vegetation community is vulnerable and at moderate risk within a particular state or province, although it may be more secure elsewhere (NatureServe 2013). Because NatureServe ranks vegetation communities at the global level, they have few rankings at the state or province level available. However, the *List of California Vegetation Alliances and Associations* (CDFG 2010) includes state-level rarity rankings (i.e., the subnational (S) rank) for vegetation communities. The *List of California Vegetation Alliances and Associations* (CDFG 2010) is considered the authority for ranking the conservation status of vegetation communities in California.

CDFG’s guidelines for determining high priority vegetation types include considering any communities listed with a ranking of S1 to S3 and ascertaining whether the specific stands of the community type within the project area are “considered as high-quality occurrences of a given community.” The consideration of stand quality includes cover of non-native invasive species, human-caused disturbance, reproductive viability, and insect or disease damage (CDFG 2012).

Vegetation communities considered special-status are those with an “S” ranking of 1, 2, or 3 (CDFG 2010), as well as communities that require mitigation by the County (County of San Diego 2010b, Table 5). These communities are denoted in Table 1 with an asterisk (*).

There are two power lines scheduled to be installed within the mitigation lands, the Gen-Tie alignment (associated with the Tierra del Sol Project) and the East County (ECO) alignment. Impacts resulting from construction of these two alignments, based on the limits of the proposed right-of-way, are excluded from the vegetation tables. Approximately 1 acre of the site was excluded as mitigation due to the presence of the planned Gen-Tie alignment and 17 acres of the site were excluded due to the ECO alignment.

Table 1
Vegetation Communities and Land Cover Types

| Habitat Types/Vegetation Communities | Code ¹ | Existing Acreage Within Mitigation Lands |
|---|-------------------|--|
| <i>Upland Scrub and Chaparral</i> | | |
| Big Sagebrush Scrub* | 35210 | 46.2 |
| Granitic Chamise Chaparral* | 37210 | 165.2 |
| Montane Buckwheat Scrub* | 37K00 | 69.6 |
| Red Shank Chaparral * | 37300 | 932.8 |
| Red Shank Chaparral-disturbed * | 37300 | 1.6 |
| Red Shank Chaparral-Rock * | 37300 | 4.9 |
| Red Shank Chaparral / Montane Buckwheat Scrub * | 37300/37K00 | 8.9 |
| Granitic Northern Mixed Chaparral* | 37131 | 984.0 |

Table 1
Vegetation Communities and Land Cover Types

| Habitat Types/Vegetation Communities | Code ¹ | Existing Acreage Within Mitigation Lands |
|--|-------------------|--|
| Granitic Northern Mixed Chaparral-Rock* | 37131 | 244.1 |
| Granitic Northern Mixed Chaparral/Montane Buckwheat Scrub* | 37131/37K00 | 6.0 |
| Scrub Oak Chaparral* | 37900 | 0.3 |
| <i>Subtotal</i> | | 2,463.6 |
| <i>Upland Woodland and Savannah</i> | | |
| Coast Live Oak Woodland* | 71160 | 17.1 |
| <i>Riparian and Bottomland Habitat</i> | | |
| Southern Coast Live Oak Riparian Forest* | 61310 | 6.8 |
| Riparian Habitat* | 63000 | 9.8 |
| <i>Subtotal</i> | | 16.6 |
| <i>Riparian Herb</i> | | |
| Alkali Meadow* | 45300 | 2.2 |
| <i>Unvegetated Areas</i> | | |
| Open Water | 64100 | 9.9 |
| Rock Outcrops | N/A | 4.0 |
| <i>Subtotal</i> | | 13.9 |
| <i>Non-Native Communities and Land Covers</i> | | |
| Non-Native Grassland | 42200 | 50.6 |
| Disturbed Land | 11300 | 35.8 |
| Urban/Developed | 12000 | 0.066 |
| <i>Subtotal</i> | | 86.5 |
| Total | | 2,601.2 |

¹ Holland (1986) as modified by Oberbauer et al. (2008)

* Considered special-status by the County (2010b).

Upland Scrub and Chaparral

Big Sagebrush Scrub (35210)

Big sagebrush scrub is characterized as being a moderately open shrubland consisting predominantly (greater than 50% absolute cover) of big sagebrush. It often occurs in or adjacent to the floodplain in the sandy transition to chaparral. This scrub community is relatively common on site, although it occurs in smaller, distinct patches. Some areas mapped as big sagebrush scrub include California buckwheat (*Eriogonum fasciculatum* var. *polifolium*), but at less than 15% absolute cover.

The *Artemisia tridentata* alliance has a rank of G5S5 in CDFG (2010), meaning it is globally secure and secure in the state. Big sagebrush scrub is considered special-status based on mitigation recommendations of the County (2010b).

Granitic Chamise Chaparral (37210)

According to Holland (1986), chamise chaparral is strongly dominated by chamise and is adapted to repeated fire by stump sprouting. The herb layer is usually very sparse (Holland 1986). On site, chamise was observed at approximately 50–75% absolute cover, with a sparse herb layer of annual forbs comprising 5–15% absolute cover. Other woody shrubs include manzanita, and cupleaf ceanothus (*Ceanothus perplexans*), which collectively comprise less than 15% absolute cover.

The *Adenostoma fasciculatum* alliance has a rank of G5S5 in CDFG (2010), meaning it is globally secure and secure in the state. Granitic chamise chaparral is considered special-status based on mitigation recommendations of the County (2010b).

Montane Buckwheat Scrub (37K00)

Montane buckwheat scrub is not described by Holland but is included in Oberbauer et al. (2008). Montane buckwheat scrub is characterized by a nearly monoculture community of flat-topped buckwheat found at higher elevations in San Diego County. On site, areas mapped as montane buckwheat scrub are almost exclusively dominated by Eastern Mojave buckwheat (*Eriogonum fasciculatum* var. *polifolium*), which occurs at approximately 25–50% absolute cover, and has a well-developed herb layer, composed of annual brome grasses and herbs at approximately 25–50% absolute cover.

The *Eriogonum fasciculatum* alliance has a rank of G5S5 in CDFG (2010), meaning it is globally secure and secure in the state. Montane buckwheat scrub is not included in the Habitat Mitigation Ratios in the County Significance Guidelines (Table 5, County of San Diego 2010b); however, it was originally classified together with flat-topped buckwheat scrub, which is considered special-status based on mitigation recommendations of the County (2010b).

Red Shank Chaparral (37300)

Red shank chaparral is composed of nearly pure stands of red shank (*Adenostoma sparsifolium*) (Holland 1986). It is similar to chamise chaparral but is typically taller and somewhat more open (Holland 1986). On site, red shank chaparral intergrades with chamise chaparral (37200) and scrub oak chaparral (37900). Red shank comprises approximately 50–75% absolute cover, with chamise occasionally present at less than 15% absolute cover. Like chamise chaparral, the herb layer in red shank chaparral is sparse. This vegetation

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community was found throughout the site. Red shank chaparral – rock was mapped in areas that supported a high percentage of large boulders within the vegetation. Areas mapped as disturbed red shank chaparral were located along a dirt access road and contained fewer shrubs and more annual grasses than pure stands of red shank chaparral.

The *Adenostoma sparsifolium* alliance has a rank of G4S4 in CDFG (2010), meaning it is considered apparently secure globally and in the state. Red shank chaparral is considered special-status based on mitigation recommendations of the County (2010b).

Montane Buckwheat Scrub/ Red Shank Chaparral/ (37K00/37300)

Montane buckwheat scrub/red shank chaparral is not described by Holland (1986) or Oberbauer et al. (2008). This community is co-dominated by Eastern Mojave buckwheat and red shank . On site, areas mapped as montane buckwheat scrub/red shank chaparral are dominated by buckwheat and red shank, but also include species such as chamise, and chaparral yucca (*Hesperoyucca whipplei*).

The *Eriogonum fasciculatum/Adenostoma sparsifolium* association is not recognized by CDFG (2010). However, montane buckwheat and red shank chaparral are considered special-status based on mitigation recommendations of the County (2010a).

Granitic Northern Mixed Chaparral (37131)

Granitic northern mixed chaparral consists of broad-leaved sclerophyll shrubs that range from 2–4 meters (7–13 feet) in height and that form dense stands dominated by chamise, red shank, manzanita, and ceanothus (*Ceanothus* spp.). This community occurs inland of southern mixed chaparral in San Diego County and is indicated by desert ceanothus (*Ceanothus greggii*) and other codominants (chamise, scrub oak, and other oak hybrids). Granitic northern mixed chaparral is underlain by granitic soils.

Granitic northern mixed chaparral has a rank of G4S4 in CDFG (2010), meaning it is considered apparently secure globally and in the state. Granitic northern mixed chaparral is not considered special-status by CDFG, but it is considered special-status based on mitigation recommendations of the County (2010a).

Granitic Northern Mixed Chaparral/Montane Buckwheat Scrub

Granitic northern mixed chaparral/montane buckwheat scrub is not described by Holland (1986) or Oberbauer et al. (2008). This community is co-dominated by broad-leaved sclerophyll shrubs such as chamise, redshank, ceanothus, and Eastern Mojave buckwheat.

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This association is not recognized by CDFG (2010); however, granitic northern mixed chaparral/montane buckwheat scrub are considered special-status based on mitigation recommendations of the County (2010a).

Scrub Oak Chaparral (37900)

Scrub oak chaparral is a dense, evergreen chaparral up to 20 feet tall (Holland 1986). Holland describes the community as dominated by scrub oak. On site, scrub oak chaparral is dominated by scrub oak at between 50–75% absolute cover. Red shank is commonly associated with this vegetation community, but occurs at less than 15% absolute cover. The herb layer is similar to that of chamise and red shank chaparral communities.

The *Quercus berberidifolia* alliance has a rank of G4S4 in CDFG (2010), meaning it is considered apparently secure globally and in the state. Scrub oak chaparral is considered special-status based on mitigation recommendations of the County (2010b).

Upland Woodland and Savannah

Coast Live Oak Woodland (71161)

Coast live oak woodland is an evergreen woodland dominated by coast live oak (*Quercus agrifolia* var. *oxyadenia*). The understory is typically made up of grassland, scrub, or chaparral species, and the community often intergrades with coastal sage scrub or mixed chaparral (Holland 1986). On site, coast live oak woodland is an open woodland, with generally less than 40% cover of coast live oak. The understory is dominated by non-native grasses and annual forbs.

The *Quercus agrifolia* alliance has a rank of G5S4 in CDFG (2010), meaning it is globally secure and apparently secure in the state. Coast live oak woodland is considered special-status based on mitigation recommendations of the County (2010b).

Riparian and Bottomland Habitat

Southern Coast Live Oak Riparian Forest (61310)

Southern coast live oak riparian forest is a dense riparian forest dominated by evergreen sclerophyllous trees (oaks) with a closed, or nearly closed, canopy. Within the mitigation site, this vegetation community is dominated by coast live oaks and riparian species such as willows, mulefat (*Baccharis salicifolia*) and tamarisk (*Tamarix* spp.), and is associated with a channel that drains into Domingo Lake.

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Southern coast live oak riparian forest has a rank of G4S4 in CDFG (2010), meaning it is globally secure and apparently secure in the state. Southern coast live oak riparian forest is considered special-status based on mitigation recommendations of the County (2010b).

Riparian Habitat (60000)

Areas mapped as riparian habitat encompass all areas that have a potential to contain riparian species and are associated with open water or stream channels. Willow species (*Salix* sp.) were observed in some of these areas however, due to the timing of the survey, willow species and tamarisk were not easily distinguishable. These areas will be refined later in the spring during rare plant surveys.

Riparian Herb

Alkali Meadow (45300)

Alkali meadow is a low-growing, dense or open association of grasses, sedges, and rushes on moist, alkaline soils. This community may intergrade with marsh communities in wetter settings or Great Basin scrub or non-native grassland in drier settings. Representative species of alkali meadow includes Mexican rush (*Juncus mexicanus*), salt grass (*Distichlis spicata*), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), and seaside heliotrope (*Heliotropium curassavicum*).

Juncus mexicanus alliance has a rank of G5S4 in CDFG (2010), meaning it is considered globally secure and apparently secure within the state. Alkali meadow is considered special-status by the County (2010b) based in its qualification as a Resource Protection Ordinance (RPO) wetland and the County's recommended mitigation ratio for this vegetation community.

Unvegetated Areas

Open Water (64100)

Open water is not a vegetation community; therefore, it is not included in the *List of California Vegetation Alliances and Associations* (CDFG 2010). Although the County does recommend mitigation for impacts to open water, this land cover type is typically considered an RPO wetland and is typically considered jurisdictional waters (County 2010b). On site, open water consists of areas where stream channels have been dammed at some point downstream, creating reservoirs and/or detention basins, most of which are dry. During the site visits two areas contained water: a small area located within the center of the site, just south of the railroad tracks, and Lake Domingo which is located in the southeastern corner of the site.

Rock Outcrops

One large rock outcrop was mapped within the mitigation lands. This area is located in the western part of the site, just north of the railroad tracks. Rock outcrops are not a vegetation community; therefore, are not included in the *List of California Vegetation Alliances and Associations* (CDFG 2010).

Rock outcrops are not considered special-status by CDFG or the County (2010b).

Non-Native Communities and Land Covers

Non-Native Grassland (42200)

According to Holland (1986), non-native grasslands include a dense to sparse cover of annual grasses that die during the summer months, persisting as seeds. Due to the timing of the survey, the species composition within areas mapped as non-native grassland could not be determined. In addition, some of the areas mapped as non-native grassland may actually contain alkali meadow species. These areas will be refined during the spring plant surveys.

Non-native grassland has a rank of G4S4 in CDFG (2010), meaning it is apparently secure globally and in the state. Because non-native grassland can provide habitat for a variety of species, the County requires mitigation for impacts to it; therefore, it is considered special-status by the County (2010b).

Disturbed Habitat (11300)

Disturbed land refers to areas that have been permanently altered by previous human activity that has eliminated all future biological value of the land for most species. The native or naturalized vegetation is no longer present, and the land lacks habitat value for sensitive wildlife, including potential raptor foraging. Disturbed habitat on site consists of unpaved roads and some areas immediately adjacent to dirt roads. These roads are graded periodically, and no native vegetation remains.

Disturbed habitat is not considered special-status by CDFG or the County (2010b).

Urban/Developed (12000)

Urban/developed land refers to areas that have been constructed upon or disturbed so severely that native vegetation is no longer supported. Developed land includes areas with permanent or semi-permanent structures, pavement or hardscape, landscaped areas, and areas with a large

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amount of debris or other materials (Oberbauer et al. 2008). Urban/developed areas in the mitigation lands are associated with historically used train tracks that bisect the mitigation lands.

Urban/developed areas are not considered special-status by CDFW or the County (2010a).

Suitability of Mitigation Lands

The mitigation lands are currently planned to be used as mitigation for at least four proposed projects -, Rugged, Tierra del Sol (which includes the Gen-Tie alignment), LanWest and LanEast projects. Mitigation required for the Rugged and Tierra del Sol projects totals 753.1 acres for a variety of upland habitat types, as shown in Table 2. There is a total of 2,531.3 acres of mitigation lands (excluding rock outcrops, wetlands/riparian habitats, disturbed land, and urban/developed) that is available for mitigation. This results in excess habitat within the mitigation lands that totals 1,759.0 acres. Most of this excess habitat results from excess chaparral habitat within the mitigation lands. A portion of this excess habitat is expected to be used as mitigation for other projects.

Table 2
Summary Mitigation Requirements for the Rugged, and Tierra del Sol Projects

| Habitat Types/Vegetation Communities | Rugged Mitigation Requirements (acres) | Tierra del Sol Mitigation Requirements (acres) | Total Mitigation Required | Vegetation within the Mitigation Site (acres) | Total Mitigation Acreage (+/- acreage required) |
|---|--|--|---------------------------|---|---|
| <i>Upland Scrub and Chaparral</i> | | | | | |
| Big Sagebrush Scrub* | 135.8 | 32.4 | 168.2 | 46.2 | -122.0 |
| disturbed Big Sagebrush Scrub* | 7.0 | -- | 7.0 | -- | -7.0 |
| Montane Buckwheat Scrub* | 65.3 | 41.7 | 106.9 | 69.6 | -37.3 |
| disturbed Montane Buckwheat Scrub* | 7.3 | 2.3 | 9.6 | -- | -9.6 |
| Granitic Chamise Chaparral* | 48.4 | 88.5 | 136.9 | 165.2 | +28.3 |
| Granitic Chamise Chaparral/ Montane Buckwheat Scrub * | -- | 2.2 | 2.2 | -- | -2.2 |
| Granitic Northern Mixed Chaparral* | -- | 37.6 | 37.6 | 984.0 | +946.4 |
| Granitic Northern Mixed Chaparral-Rock* | -- | -- | -- | 244.1 | +244.1 |
| Granitic Northern Mixed Chaparral/ Montane Buckwheat Scrub * | -- | 13.3 | 13.3 | 6.0 | -7.3 |
| Red Shank Chaparral* | 36.0 | 69.8 | 105.8 | 932.8 | +827.0 |
| disturbed Red Shank Chaparral* | -- | -- | -- | 1.6 | +1.6 |
| Red Shank Chaparral-Rock * | -- | -- | -- | 4.9 | +4.9 |

Table 2
Summary Mitigation Requirements for the Rugged, and Tierra del Sol Projects

| Habitat Types/Vegetation Communities | Rugged Mitigation Requirements (acres) | Tierra del Sol Mitigation Requirements (acres) | Total Mitigation Required | Vegetation within the Mitigation Site (acres) | Total Mitigation Acreage (+/- acreage required) |
|---|--|---|---|---|---|
| Montane Buckwheat Scrub/ Red Shank Chaparral* | -- | 2.0 | 2.0 | 8.9 | +6.9 |
| Scrub Oak Chaparral* | 58.7 | 6.6 | 65.3 | 0.3 | -65.0 |
| disturbed Scrub Oak Chaparral* | 0.5 | -- | 0.5 | -- | -0.5 |
| Semi-Desert Chaparral* | 57.8 | -- | 57.8 | -- | -57.8 |
| Semi-Desert Chaparral – Rock* | 1.5 | -- | 1.5 | -- | -1.5 |
| disturbed Semi-Desert Chaparral* | 0.3 | -- | 0.3 | -- | -0.3 |
| <i>Subtotal</i> | 418.6 | 296.4 | 715 | 2,463.6 | +1,748.6 |
| <i>Upland Woodland and Savannah</i> | | | | | |
| Coast Live Oak Woodland* | -- | included in oak root zone mitigation ² | included in oak root zone mitigation ² | 17.1 | +17.1 |
| Disturbed Coast Live Oak Woodland | -- | included in oak root zone mitigation ² | included in oak root zone mitigation ² | -- | -- |
| Mixed Oak Woodland* | -- | -- | -- | -- | -- |
| Oak Root Zone ¹ | -- | 7.5 | 7.5 | -- | -7.5 ³ |
| <i>Subtotal</i> | -- | 7.5 | 7.5 | 17.1 | -9.6 ³ |
| <i>Non-Native Communities and Land Covers</i> | | | | | |
| Non-Native Grassland* | 30.4 | 0.2 | 30.6 | 50.6 | +20.0 |
| Total** | 449.0 | 304.1 | 753.1 | 2,531.3⁴ | 1,759.0 |

¹ These features are overlays to the vegetation community layer and are not counted toward the overall acreage.

² Because the oak root zone impacts require a higher mitigation ratio, acres of vegetation communities included in the oak root zone category that have less than a 3:1 mitigation ratio are not counted in the vegetation communities and land cover types.

³ Mitigation requirements for impacts to oak root zone will be mitigated through conservation of oak riparian forest. A total of 6.8 acres of oak riparian forest occurs within the mitigation site.

⁴ Does not include 4 acres of rock, 36 acres of disturbed land, and 0.07 acres of urban/developed habitat.

* Considered special-status by the County (2010a).

** Totals may not add due to rounding.

Although the mitigation site does not support adequate habitat to mitigate each specific vegetation communities separately, taken as a whole, the overall suite of habitats that exist within the mitigation lands provide adequate mitigation to compensate for the losses associated with the two current projects, with remaining habitat available to mitigate future projects. The final acreage of the mitigation site that will be dedicated to mitigate each project will be determined during preparing of a Final Resource Management Plan (RMP), taking into account areas required to mitigate special-status plant species. It is expected that more than 753.1 acres

will be required to mitigate impacts to special-status plant species. Therefore the lack of in-kind habitat mitigation for certain communities (e.g., big sagebrush scrub, scrub oak chaparral) will be compensated by an overall greater acreage of mitigation.

This approach is appropriate because species in this region generally utilize a variety of habitats (e.g., scrub, chaparral, and oak woodlands) as opposed to being specifically restricted to one habitat type. Special-status wildlife will generally utilize all of these habitats indiscriminately, provided there is suitable cover, habitat connectivity, and water and food resources. During Dudek’s field investigations, special-status plant species were found in many different chaparral habitats, indicating that they will serve the same special-status species that were found on the three project sites. Furthermore, these species benefit from the consolidated nature of the proposed mitigation lands through reduced edge effects and enhanced regional connectivity.

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES

In addition to the compensation for impacts to special-status vegetation communities, the mitigation lands are being proposed to compensate for impacts to special-status plant species and habitat for special-status wildlife species associated with the Rugged and Tierra del Sol solar farm projects.

Special-Status Plant Species

Mitigation is required to offset impacts to 4 of the 10 special-status plant species observed within either the Rugged or Tierra del Sol project areas including: Tecate tarplant (*Deinandra* [=*Hemizonia*] *floribunda*), desert beauty (*Linanthus bellus*), Jacumba milk-vetch (*Astragalus douglasii* var. *perstrictus*), and sticky geraea (*Geraea viscida*) (Table 3). These four species, have been observed within the mitigation lands (Table 3).

**Table 3
Special-Status Plant Species with a Potential to Occur in the Mitigation Site**

| Scientific Name Common Name | Sensitivity Code and Status (Federal/State/County/CRPR) ¹ | Habitat Requirements/Life Form/Blooming Period/Elevation Range | Verified on Rugged and/or Tierra del Sol (direct/indirect evidence) | Potential to Occur within the Mitigation Site and Factual Basis for Determination |
|---|---|---|---|--|
| <i>Astragalus douglasii</i> var. <i>perstrictus</i> Jacumba milk-vetch | None/None/List A, MSCP/1B.2 | Chaparral, cismontane woodland, pinyon and juniper woodland, riparian scrub, valley and foothill grassland; rocky/perennial herb/April–June/2,953 to 4,495 feet | Observed within both Tierra del Sol, Rugged. | Observed within mitigation lands. Suitable soils found within the western and central regions of the mitigation site. The mitigation site also contains suitable vegetation communities. |

Table 3
Special-Status Plant Species with a Potential to Occur in the Mitigation Site

| Scientific Name Common Name | Sensitivity Code and Status (Federal/State/County/CRPR) ¹ | Habitat Requirements/Life Form/Blooming Period/Elevation Range | Verified on Rugged and/or Tierra del Sol (direct/indirect evidence) | Potential to Occur within the Mitigation Site and Factual Basis for Determination |
|---|---|--|---|---|
| <i>Deinandra</i> [= <i>Hemizonia</i>] <i>floribunda</i> Tecate tarplant | None/None/List A, MSCP/1B.2 | Chaparral, coastal scrub/annual herb/August–October/230 to 4,003 feet | Observed within both Tierra del Sol, and Rugged. | Observed within mitigation lands. Suitable soils and vegetated habitat located within the mitigation site. This species was observed along ephemeral drainages in both solar farm project areas and similar drainages are located within the mitigation site. |
| <i>Geraea viscida</i> Sticky geraea | None/None/List B, MSCP/2.3 | Chaparral (often disturbed)/perennial herb/May–June/1,476 to 5,577 feet | Observed within both Tierra del Sol, and Rugged. | Observed within mitigation lands. Suitable chaparral habitat and soils located throughout the mitigation site. |
| <i>Hesperocyparis forbesii</i> Tecate cypress | None/None/List A, MSCP/1B.1 | Closed-cone conifer forest, chaparral/evergreen tree/NA/255–1,500 meters | Observed within Tierra del Sol. Absent from Rugged. | Not observed. This species was presumed an ornamental planted on the Tierra del Sol site. No Tecate cypress trees were observed during the initial biological surveys. |
| <i>Linanthus bellus</i> Desert beauty | None/None/List B, MSCP/2.3 | Chaparral; sandy/annual herb/April–May/3,281 to 4,593 feet | Observed within both Tierra del Sol, and Rugged. | Observed within mitigation lands. Suitable vegetated and soil habitats found within mitigation site |

¹ **Status Designations:**
MSCP: Proposed Covered Species under the Draft East County MSCP
SE: State-listed as endangered
ST: State-listed as threatened
SR: State-listed as rare

CRPR: California Rare Plant Rank

- 1A (formerly List 1A): Plants Presumed Extinct in California
- 1B (formerly List 1B): Plants Rare, Threatened, or Endangered in California and Elsewhere
- 2 (formerly List 2): Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
- 3 (formerly List 3): Plants About Which We Need More Information – A Review List
- 4 (formerly List 4): Plants of Limited Distribution – A Watch List
- 0.1–Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
- 0.2–Fairly threatened in California (20–80% occurrences threatened/moderate degree and immediacy of threat)
- 0.3–Not very threatened in California (<20% of occurrences threatened /low degree and immediacy of threat or no current threats known)

Tecate Tarplant (*Deinandra floribunda*)

Tecate tarplant is a CRPR 1B.2 (CNPS 2013) and a County List A species (County of San Diego 2010a). A member of the sunflower (*Asteraceae*) family, this species blooms from August

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through October in chaparral and coastal scrub habitats. Tecate tarplant is an annual herb that occurs at elevations of 70 to 1,220 meters (230 to 4,003 feet) (CNPS 2013).

On the mitigation lands approximately 2,455–8,285 occurrences of Tecate tarplant have been identified (Table 4, Figure 4). Most occurrences within the mitigation lands were documented within sandy drainages and roadsides. The amount of Tecate tarplant recorded within the mitigation site provides the required mitigation for this species.

Desert Beauty (*Linanthus bellus*)

Desert beauty is a CRPR 2.3 (CNPS 2013) and a County List B species (County of San Diego 2010a). A member of the phlox (*Polemoniaceae*) family, this annual herb blooms from April through May in chaparral habitats. This species typically occurs at elevations of 1,000 to 1,400 meters (3,281 to 5,493 feet) (CNPS 2013).

On the mitigation lands approximately 811–2,790 occurrences of desert beauty have been identified (Table 4, Figure 4). Most occurrences were documented in the north-central portion of the mitigation lands within open sandy areas in red shank chaparral. Few occurrences were documented within granitic chamise chaparral, as well.

Fewer numbers of desert beauty were detected within the mitigation lands than are required by the mitigation ratios. However, prior to conducting focused surveys, a check of reference populations within Rugged and Tierra del Sol project areas found reduced population sizes for this species when compared with survey results from 2011 and 2012. As such, it is suggested that the population size results found in 2013 within the mitigation lands are not indicative of generally reduced population size; rather, that fewer individuals were blooming during 2013 surveys. It is therefore presumed that there is sufficient desert beauty within the mitigation lands during other years that are in accordance with the mitigation ratio.

The 2,601-acre mitigation site supports approximately 2,464 acres of potentially suitable habitat for this species. Approximately 800 acres (32%) of the suitable habitat was surveyed during the focused spring surveys for desert beauty. Although additional surveys are required, it is expected that in a more typical rainfall year, conservation of 800–1,000 acres of the site will be adequate to support the required numbers of desert beauty.

Jacumba Milk-vetch (*Astragalus douglasii* var. *perstrictus*)

Jacumba milk-vetch is a CRPR 1B.2 (CNPS 2013) and County List A species (County of San Diego 2010a). This perennial herb in the pea or bean family (*Fabaceae*) blooms from April through June. It occurs in chaparral, cismontane woodland, pinyon and juniper woodland,

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riparian scrub, valley and foothill grassland, and rocky communities at elevations of 900 to 1,370 meters (2,953 to 4,495 feet) (CNPS 2013).

Within the mitigation lands, there are approximately 225–672 occurrences, concentrated in the north-central, southeast, and southwest portions of the site (Figure 4). Since the first pass of focused surveys resulted in the detection of fewer plants than are required for mitigation, the fall pass will also focus on recording any additional milk-vetch that may be located outside of the originally defined focused survey areas.

Sticky Gerarea (*Geraea viscida*)

Sticky gerarea is a CRPR 2.3 (CNPS 2013) and a County List B species (County of San Diego 2010a). A member of the sunflower (*Asteraceae*) family, this perennial herb blooms from May through June in chaparral habitats and occurs at elevations between 450 and 1,700 meters (1,476–5,557 feet) (CNPS 2013). Approximately 356–1,333 individuals were observed during the June 2013 survey pass (Figure 4). Most of the observations were in northern mixed chaparral or redshank chaparral in the northern area of the mitigation lands, and in areas southeast of the railroad tracks. The amount of sticky gerarea recorded within the mitigation site provides the required mitigation for this species.

Table 4
Mitigation Requirements for Special-Status Plant Species

| Species | Impacts to Special-Status Plant Species | | | Mitigation Requirements | | | Total Recorded within Mitigation Lands | Approx. Acres Surveyed (portion of high suitability habitat) |
|--------------------|---|-----------|-------------------|-------------------------|-------------------|--------------------|--|--|
| | Tierra del Sol | Rugged | Gen-tie Alignment | Mitigation Ratio | Total Needs (Low) | Total Needs (High) | | |
| Tecate tarplant | 3,103 | 1–10 | n/a | 2:1* | 6,206 | 6,226 | 2,455–8,285 | n/a |
| Desert beauty | 727 | 414–1,820 | 84–600 | 1:1 | 1,225 | 3,147 | 811–2,790 | 800 (32%) |
| Jacumba milk-vetch | 315 | 66–480 | 27–150 | 2:1* | 816 | 1,890 | 251–872 | 1,122 (46%) |
| Sticky gerarea | 274 | 161–690 | 10–50 | 1:1 | 445 | 1,014 | 356–1,333 | 1,122 (46%) |

* Due to their relative abundance within the project areas, a two to one ratio was chosen for impacts to List A plant species.

Special-Status Wildlife Species

Mitigation for significant long-term direct impacts to County Group 1 wildlife species as a result of removal of suitable habitat within the Tierra del Sol and Rugged solar farm projects,

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will be reduced to a level that is less than significant through habitat conservation of equivalent function and value. Combined, the two solar farm projects have the potential to directly impact 8 reptile and amphibian species, 10 bird species, and 11 bat species (Table 5). A preliminary assessment of vegetation communities, elevation, and range of these species has determined that all 29 species have a potential to occur within the mitigation site (Table 4). The following sources were also consulted for pertinent special-status species information: the California Natural Diversity Database (CNDDDB) (CDFW 2013a), information provided by the California Department of Fish and Wildlife (CDFW) (CDFG 2011, CDFW 2013b), the San Diego County Bird Atlas (Unitt 2004), and previous bird utilization count surveys conducted by Dudek (Dudek 2012). Focused surveys for quino checkerspot (*Euphydryas editha quino*) were conducted on the Tierra Del Sol, Gen-tie and Rugged project sites in 2012 and 2013. The surveys were negative. In the unlikely event that quino checkerspot were to be found, the habitats on the proposed mitigation property would be similar and consistent with their needs. A habitat assessment for these species will be conducted in the spring/summer of 2013 to confirm the potential for these species to occur and to document species observed within the mitigation site.

Table 5
Special-Status Wildlife Species within a Potential to Occur in the Mitigation Site

| Scientific Name/ Common Name | Status (Federal/ State/County) ¹ | Habitat Preferences/Requirements | Verified on Rugged and/or Tierra del Sol (direct/indirect evidence) | Potential to Occur within the Mitigation Site and Factual Basis for Determination |
|---|---|---|--|---|
| <i>Amphibians and Reptiles</i> | | | | |
| <i>Aspidoscelis hyperythra beldingi</i> Belding's orange-throated whiptail | None/SSC/ Group 2, MSCP | Coastal sage scrub, chamise-redshank chaparral, mixed chaparral, valley-foothill hardwood especially in area with summer fog. Found from Santa Ana River and near Colton in San Bernardino County, west of Peninsular Ranges, south throughout Baja California, 0 to 2,001 feet (1, 2). | Observed within Rugged and moderate potential to occur within Tierra del Sol. | Moderate. Suitable habitat is present within the mitigation site. The mitigation site is above the elevation range for this species, however this species was observed at the Rugged site where the elevation ranges from 3,500 to 3,670 feet amsl. The nearest CNDDDB occurrence for this species is approximately 10 miles west of the mitigation site (6). |

Table 5
Special-Status Wildlife Species within a Potential to Occur in the Mitigation Site

| Scientific Name/ Common Name | Status (Federal/ State/County) ¹ | Habitat Preferences/Requirements | Verified on Rugged and/or Tierra del Sol (direct/indirect evidence) | Potential to Occur within the Mitigation Site and Factual Basis for Determination |
|--|---|---|---|---|
| <i>Phrynosoma blainvillii</i> Blainville's horned lizard | None /SSC/ Group 2, MSCP | Area of sandy soil and low vegetation in valleys, foothills, and semiarid mountains. Annual grassland, chaparral, woodland, coniferous forest, sandy area, frequently near ant hills. Foothills and coastal plains from Los Angeles to northern Baja California (1, 3). | Observed within both Tierra del Sol, and Rugged. | Observed within mitigation lands. Suitable habitat for this species is located throughout the mitigation area. The nearest CNDDDB occurrence for this species is less than 0.4 miles northeast of the mitigation site (6). |
| <i>Salvadora hexalepis virgulata</i> Coast patch-nosed snake | None/SSC/ Group 2, MSCP | Semi-arid, brushy area and chaparral in canyons, rocky hillsides, plains from northern Carrizo Plains south through coastal zone, south and west of the deserts into coastal northern Baja California, at elevations below sea level to 6,988 feet (1). | High potential to occur within Rugged, and moderate potential to occur within Tierra del Sol. | High. Suitable habitat for this species is located throughout the mitigation area. The nearest CNDDDB occurrence for this species is approximately 28 miles northwest of the mitigation site (6). |
| <i>Plestiodon skiltonianus interparietalis</i> Coronado skink | None/SSC/ Group 2, MSCP | Grassland, woodlands, pine forests, chaparral, especially open sunny areas, such as clearings and edges of creeks, and rocky areas near streams with lots of vegetation; in litter, rotting logs, under flat stones. Found in coastal ranges and Sierra Nevada and foothills, 0 to 8,300 feet (1, 2). | High potential to occur within Rugged, and low potential to occur within Tierra del Sol due to lack of habitat. | High. Suitable habitat for this species is located around Domingo Lake. The nearest CNDDDB occurrence for this species is approximately 24 miles west of the mitigation site (6). |
| <i>Crotalus ruber ruber</i> Northern red-diamond rattlesnake | None/SSC/ Group 2, MSCP | Chaparral, oak and pine woodland, arid desert, rocky grassland habitats in rocky area and dense vegetation; rocky desert flats on desert slopes of mountains; Morongo Valley (1). | High potential to occur within both Tierra del Sol and Rugged. | High. Suitable habitat for the northern red-diamond rattlesnake is present within the rocky outcrops observed throughout the mitigation site. Also, any area with dense vegetation provides suitable habitat, including chaparral, scrub, and woodland habitats. The nearest CNDDDB occurrence for this species is approximately 2.3 miles east of the mitigation site (6). |
| <i>Anniella pulchra pulchra</i> Silvery legless lizard | None/SSC/ Group 2 | Loose soils (sand, loam, humus) in coastal dune, coastal sage scrub, woodlands, and riparian habitats (1). | High potential to occur within both Tierra del Sol and Rugged. | High. Suitable habitat for this species is located within the oak woodlands and surrounding areas of open water. The nearest CNDDDB occurrence for this species is approximately 32 miles north of the mitigation site (6). |

Table 5
Special-Status Wildlife Species within a Potential to Occur in the Mitigation Site

| Scientific Name/ Common Name | Status (Federal/ State/County) ¹ | Habitat Preferences/Requirements | Verified on Rugged and/or Tierra del Sol (direct/indirect evidence) | Potential to Occur within the Mitigation Site and Factual Basis for Determination |
|---|---|---|---|---|
| <i>Thamnophis hammondi</i> Two-striped garter snake | None/SSC/ Group 1, MSCP | Permanent or semipermanent bodies of water bordered by dense vegetation in rocky area, oak woodland, chaparral, brushland, coniferous forest. Found on Diablo Range, South Coast and Transverse Ranges, and Santa Catalina Island (1, 2). | High potential to occur within Rugged, no potential to occur in Tierra del Sol due to lack of suitable habitat. | High. Suitable habitat is present within areas of open water and surrounding open water. The nearest CNDDDB occurrence for this species is approximately 10.4 miles west of the mitigation site (6). |
| <i>Spea</i> [= <i>Scaphiopus</i>] <i>hammondi</i> Western spadefoot | None/SSC/ Group 2, MSCP | Sandy/gravelly soils within mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washes, foothills, mountains, and other habitats. Breed in rainpools that do not have bullfrogs, fish, or crayfish. Found throughout Great Valley and foothills south of Redding, throughout South Coast Ranges in Southern California south of Transverse Mountains and west of Peninsular Mountains, 0 to 4,478 feet (1). | High potential to occur within Rugged, no potential to occur in Tierra del Sol due to lack of suitable habitat. | High. Suitable habitat is present within areas of open water, and surrounding open water, as well as stream channels located throughout the site. The nearest CNDDDB occurrence for this species is approximately 27.5 miles west of the mitigation site (6). |
| <i>Birds</i> | | | | |
| <i>Accipiter cooperii</i> Cooper's hawk (nesting) | None/WL/ Group 1, MSCP | Dense stands of live oak, riparian deciduous, forest habitats near water. Breeds in southern Sierra Nevada foothills, New York Mountains., Owens Valley, and other local area in Southern California, 0 to 8,858 feet (2). | Observed within Rugged and Tierra del Sol. | Known to occur. Suitable habitat for this species is located within the oak woodlands and surrounding areas of open water and this species was observed within the mitigation site during focused bird count surveys ¹ (7). The nearest CNDDDB occurrence for this species is approximately 1.3 miles west of the mitigation site (6). Recorded in U26 and surrounding grids T25-27 and U25 and U27 (8). |

¹ This is a modified point-count survey method used to obtain a baseline index of bird use within the area. Monitoring data collected, taken from November 2010 through July 2012, included data such as time, the number and species of birds observed, distance and flight height estimate in general, distance and height estimate, habitat, flight pattern and direction, perch height, and behavior of raptors.

Table 5
Special-Status Wildlife Species within a Potential to Occur in the Mitigation Site

| Scientific Name/ Common Name | Status (Federal/ State/County) ¹ | Habitat Preferences/Requirements | Verified on Rugged and/or Tierra del Sol (direct/indirect evidence) | Potential to Occur within the Mitigation Site and Factual Basis for Determination |
|---|---|---|--|--|
| <i>Agelaius tricolor</i> Tricolored blackbird | BCC/SSC/ Group 1, MSCP | Breeds in emergent wetland with tall, dense cattails or tules; willow, blackberry, tall herb thickets. Feeds in grassland and cropland habitats. Found throughout Central Valley and coastal area south of Sonoma County (2). | High potential to forage within Rugged, not expected to nest. No suitable habitat on Tierra del Sol. | High potential to forage. Meadow habitat, and non-native grassland habitat on site provides suitable foraging habitat. Potential nesting suitable habitat on site around Domino Lake. Red-winged blackbirds have been observed in the area (7). The nearest CNDDDB occurrence for this species is approximately 4.5 miles east of the mitigation site (6). Recorded in U26 and surrounding grids T25-27 and U25 (8). |
| <i>Aimophila ruficeps canescens</i> Southern California rufous-crowned sparrow | None/WL/ Group 1, MSCP | Sparse mixed chaparral and coastal scrub habitats (especially coastal sage) in Southern California on slopes of Transverse and Coastal Ranges, north to Los Angeles County, and northwestern Baja California. Found on steep, rocky hillsides with grass and forb patches, and grassy slopes without shrubs, if rock outcrops are present (2, 4). | High potential to occur within Tierra del Sol and Rugged. | High. Suitable habitat for this species is located throughout the mitigation area. The nearest CNDDDB occurrence for this species is approximately 26.5 miles northwest of the mitigation site (6). Recorded in U26 (8). |
| <i>Amphispiza belli belli</i> Bell's sage sparrow | BCC / WL/ Group 1, MSCP | Low, dense stands of shrubs; chaparral dominated by chamise; coastal scrub dominated by sage. Coast Ranges from northern California to northwestern Baja California, western slope of Sierra Nevada (2, 4). | Observed within both Tierra del Sol and Rugged. | High. Suitable habitat for this species is located throughout the mitigation area. The nearest CNDDDB occurrence for this species is approximately 22 miles northwest of the mitigation site (6). Not recorded in grids; sage sparrow (<i>Amphispiza belli</i>) recorded in U26 and surrounding grids T25-27, U25 and U27 (8). |

Table 5
Special-Status Wildlife Species within a Potential to Occur in the Mitigation Site

| Scientific Name/ Common Name | Status (Federal/ State/County) ¹ | Habitat Preferences/Requirements | Verified on Rugged and/or Tierra del Sol (direct/indirect evidence) | Potential to Occur within the Mitigation Site and Factual Basis for Determination |
|---|---|---|--|---|
| <i>Aquila chrysaetos</i> Golden eagle (nesting and wintering) | BCC/FP, WL/ Group 1, MSCP | Rolling foothills, mountain area, sage-juniper flats, and desert throughout California (2). | High potential to forage on Rugged with a low potential to nest. Not expected to forage or nest within Tierra del Sol. | Known to occur. Suitable foraging habitat is present within most of the mitigation site; moderate potential to nest within rocky areas. Recorded nesting sites are located in the region, but off site. This species was observed within the mitigation site during focused bird count surveys for the area (7). The nearest CNDDDB occurrence for this species is approximately 13 miles west of the mitigation site (6). Recorded in surrounding grids T26, T27, and U25 (8). |
| <i>Buteo lineatus</i> Red-shouldered hawk | None/None/ Group 1 | Riparian and woodland habitats interspersed with swamps and wetlands found along coast, southern deserts, and in Central Valley, 0 to 4,921 feet (2). | Moderate potential to occur within Tierra del Sol and high potential to occur within Rugged. | Known to occur. Suitable habitat for this species is located throughout the mitigation area. May use the project area for nesting and foraging. This species was observed within the mitigation site during focused bird count surveys for the area (7). There are no CNDDDB occurrence records for this species (6). Recorded in surrounding grids T25-27 and U25 (8). |
| <i>Cathartes aura</i> Turkey vulture | None/None/ Group 1, MSCP | Rangeland, agriculture, grassland; uses cliffs and large trees for roosting, nesting, and resting throughout most of California during breeding season (2). | Observed within both Tierra del Sol and Rugged. | Known to occur. Suitable habitat for this species is located throughout the mitigation area. Suitable open foraging habitat present on site. Suitable nesting habitat not available on site. This species was observed within the mitigation site during focused bird count surveys for the area (7). There are no CNDDDB occurrence records for this species (6). Recorded in grid U26 and surrounding grids T25-27, U25, and U27 (8). |

**Table 5
Special-Status Wildlife Species within a Potential to Occur in the Mitigation Site**

| Scientific Name/ Common Name | Status (Federal/ State/County) ¹ | Habitat Preferences/Requirements | Verified on Rugged and/or Tierra del Sol (direct/indirect evidence) | Potential to Occur within the Mitigation Site and Factual Basis for Determination |
|---|---|---|--|---|
| <i>Circus cyaneus</i> Northern harrier (nesting) | None/SSC/ Group 1, MSCP | Open wetlands (nesting), pasture, old fields, dry uplands, grasslands, rangelands, coastal sage scrub. Resident of northeastern plateau and coastal area; less common resident in Central Valley. Breeds at marsh edge in shrubby vegetation in Central Valley and Sierra Nevada (0 to 5,577 feet), and northeastern California (up to 2,625 feet (2)). | Observed within Rugged and not expected to occur within Tierra del Sol. | Known to occur. This species is only expected as a winter visitor in grassland habitat and the more open area of scrub and chaparral communities on site. This species was observed within the mitigation site during focused bird count surveys for the area (7). The nearest CNDDDB occurrence for this species is approximately 47 miles west of the mitigation site (6). Recorded in U26 and surrounding grids T27 and U27 (8). |
| <i>Falco mexicanus</i> Prairie falcon (nesting) | BCC/WL/ Group 1 | Grassland, savannas, rangeland, agriculture, desert scrub, alpine meadows; nest on cliffs or bluffs. Southeastern deserts northwest through Central Valley and along inner Coast Ranges and Sierra Nevada (2). | Observed within Rugged. Not expected to nest within either site but there is a high potential for foraging. | High. There is suitable foraging habitat throughout the site and potential nesting habitat within the rocky areas. The nearest CNDDDB occurrence for this species is centered approximately 2 miles west of the mitigation site (6). Not recorded in grids (8). |
| <i>Lanius ludovicianus</i> Loggerhead shrike (nesting) | BCC/SSC/ Group 1, MSCP | Open habitats with scattered shrubs, trees, or other perches; highest density in open-canopied valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian, pinyon-juniper, juniper, desert riparian, and Joshua tree habitats. Found in foothills and lowlands throughout California (2). | Observed within Rugged and Tierra del Sol. | Known to occur. Suitable nesting habitat for this species is located throughout the mitigation area. This species was observed within the mitigation site during focused bird count surveys for the area (7). The nearest CNDDDB occurrence for this species is approximately 24 miles north of the mitigation site (6). Recorded in U26 and surrounding grids T25-27, U25 and U27 (8). |
| <i>Mammals</i> | | | | |
| <i>Chaetodipus californicus femoralis</i> Dulzura (California) pocket mouse | None/SSC/ Group 2 | Open habitat, coastal sage scrub, chaparral, oak woodland, chamise chaparral, mixed conifer habitats; disturbance specialist; 0 to 3,000 feet (5). | Low potential to occur within Tierra del Sol due to lack of suitable habitat. High potential to occur within Rugged. | Moderate. Suitable habitat for this species exists within the oak woodland and chaparral habitats within the mitigation area. Mitigation area is located just outside of the range for this species. The nearest CNDDDB occurrence for this species is approximately 4 miles north of the mitigation site (6). |

Table 5
Special-Status Wildlife Species within a Potential to Occur in the Mitigation Site

| Scientific Name/ Common Name | Status (Federal/ State/County) ¹ | Habitat Preferences/Requirements | Verified on Rugged and/or Tierra del Sol (direct/indirect evidence) | Potential to Occur within the Mitigation Site and Factual Basis for Determination |
|---|---|--|--|---|
| <i>Chaetodipus fallax fallax</i> Northwestern San Diego pocket mouse | None/SSC/ Group 2 | Coastal sage scrub, grassland, sage scrub-grassland ecotones, sparse mixed and chamise chaparral; rocky and gravelly area with yucca overstory, 500 to 3,000 feet (3). | Not expected to occur within Tierra del Sol due to lack of suitable habitat. High potential to occur within Rugged. | Moderate. Suitable habitat for this species is located throughout the mitigation area. Mitigation area is located just outside of the range for this species. The nearest CNDDDB occurrence for this species is approximately 12 miles west of the mitigation site (6). |
| <i>Choeronycteris mexicana</i> Mexican long-tongued bat | None/SSC/ Group 2, WBWG: H | Desert and montane riparian, desert succulent scrub, desert scrub, and pinyon-juniper woodland. Roosts in caves, mines, and buildings. Summer resident in San Diego County (2). | Not expected to occur within Tierra del Sol due to lack of suitable habitat. High potential to occur within Rugged. | High. Suitable foraging habitat for this species is located throughout the mitigation area. The nearest CNDDDB occurrence for this species is approximately 40 miles northwest of the mitigation site (6). |
| <i>Corynorhinus townsendii</i> Townsend's big-eared bat | None/SSC/ Group 2, MSCP, WBWG:H | Mesic habitats; gleans from brush or trees, or feeds along habitat edges. Found in all habitats but subalpine and alpine throughout California (2). | Low potential to occur within Tierra del Sol due to lack of suitable habitat. High potential to occur within Rugged. | High. Suitable foraging habitat for this species is located throughout the mitigation area. The nearest CNDDDB occurrence for this species is approximately 11 miles northwest of the mitigation site (6). |
| <i>Euderma maculatum</i> Spotted bat | None/SSC/ Group 2, WBWG:H | Foothills, mountains, desert regions of Southern California, including arid deserts, grasslands, and mixed conifer forests. Roosts in rock crevices and cliffs. Feeds over water and along washes (2). | Not expected to occur within Tierra del Sol due to lack of suitable habitat. High potential to occur within Rugged. | High. Suitable foraging habitat for this species is located throughout the mitigation area. The nearest CNDDDB occurrence for this species is approximately 55 miles northwest of the mitigation site (6). |

**Table 5
Special-Status Wildlife Species within a Potential to Occur in the Mitigation Site**

| Scientific Name/ Common Name | Status (Federal/ State/County) ¹ | Habitat Preferences/Requirements | Verified on Rugged and/or Tierra del Sol (direct/indirect evidence) | Potential to Occur within the Mitigation Site and Factual Basis for Determination |
|--|---|---|--|--|
| <i>Eumops perotis californicus</i> Greater western mastiff bat | None/SSC/ Group 2, MSCP, WBWG:H | Roosts in small colonies in cracks and small holes, seeming to prefer man-made structures. All subalpine and alpine habitats; 50 to 10,000 feet (3). | Low potential to occur within Tierra del Sol due to lack of suitable habitat. High potential to occur within Rugged. | High. Suitable foraging habitat for this species is located throughout the mitigation area. The nearest CNDDDB occurrence for this species is approximately 11 miles northwest of the mitigation site (6). |
| <i>Lasiurus blossevillii</i> Western red bat | None/SSC/ Group 2, WBWG:H | Prefers edges with trees for roosting and open areas for foraging. Roosts in woodlands and forests. Forages over grasslands, shrublands, woodlands, forests, and croplands. Found south of Shasta County to Mexican border, and west of the Sierra Nevada/Cascade Crest. In winter, occupies coastal regions and lowlands south of San Francisco Bay (2). | Not expected to occur within Tierra del Sol due to lack of suitable habitat. High potential to occur within Rugged. | High. Suitable foraging habitat for this species is located throughout the mitigation area. The nearest CNDDDB occurrence for this species is approximately 15 miles west of the mitigation site (6). |
| <i>Lepus californicus bennettii</i> San Diego black-tailed jackrabbit | None/SSC/ Group 2, MSCP | Arid habitats with open ground; grasslands, coastal sage scrub, agriculture, disturbed area, and rangelands in Southern California (2, 4). | Observed within Tierra del Sol and Rugged. | This species was observed during surveys. The nearest CNDDDB occurrence for this species is less than 1 mile north of the mitigation site (6). |
| <i>Macrotus californicus</i> California leaf-nosed bat | None/SSC/ Group 2, WBWG:H | Desert riparian, desert wash, desert scrub, desert succulent shrub, alkali desert scrub, and palm oasis. Found from Riverside, Imperial, San Diego, and San Bernardino Counties, south to Mexican border; fairly common along parts of Colorado River, elevation approximately 1,969 feet (2). | Not expected to occur within Tierra del Sol due to lack of suitable habitat. High potential to occur within Rugged. | High. Suitable foraging habitat for this species is located throughout the mitigation area. The nearest CNDDDB occurrence for this species is approximately 14 miles northeast of the mitigation site (6). |

Table 5
Special-Status Wildlife Species within a Potential to Occur in the Mitigation Site

| Scientific Name/ Common Name | Status (Federal/ State/County) ¹ | Habitat Preferences/Requirements | Verified on Rugged and/or Tierra del Sol (direct/indirect evidence) | Potential to Occur within the Mitigation Site and Factual Basis for Determination |
|--|---|--|---|--|
| <i>Neotoma lepida intermedia</i> San Diego desert woodrat | None/SSC/ Group 2 | Joshua tree, pinyon-juniper, mixed and chamise-redshank chaparral, sagebrush, and most desert habitats. Found south of San Luis Obispo County to San Diego County and San Bernardino and Riverside Counties, 0 to 8,530 feet (2, 4). | Observed within Tierra del Sol and high potential to occur within Rugged. | High. Suitable habitat for this species is located throughout the mitigation area. The nearest CNDDDB occurrence for this species is approximately 1 mile west of the mitigation site (6). |
| <i>Nyctinomops macrotis</i> Big free-tailed bat | None/SSC/ WBWG:MH, Group 2 | Rugged, rocky canyons in Riverside, Los Angeles, and San Diego Counties, but scattered records across California to Oakland (2). | Not expected to occur within Tierra del Sol due to lack of suitable habitat. High potential to occur within Rugged. | High. Suitable foraging habitat for this species is located throughout the mitigation area. The nearest CNDDDB occurrence for this species is approximately 16 miles northwest of the mitigation site (6). |

¹ Status Designations:

Federal

BCC U.S. Fish and Wildlife Service: Birds of Conservation Concern
 WBWG: H Western Bat Working Group: High Priority
 WBWG: MH Western Bat Working Group: Medium-High Priority

State Designations:

SSC California Special Concern Species
 FP California Department of Fish and Game Fully Protected Species
 WL California Department of Fish and Game Watch List Species

County Designations:

MSCP Draft East County MSCP covered species

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2. Zeiner et al. 1988, 1990a-b
3. SDNHM 2012
4. NatureServe 2012
5. Brehme, C., D. Clark, C. Rochester, and R. Fisher. 2011.
6. CDFW 2013b. CNDDDB.
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8. Unitt 2004.

CONCLUSION

Based upon vegetation mapping, elevation ranges, soils, and location of the mitigation site, the mitigation site contains suitable habitat to compensate for the loss of special-status plant and wildlife species that will be, or could potentially be impacted by the Tierra del Sol and Rugged solar farm projects. The mitigation lands, as a whole, provide adequate mitigation for most identified impacts, including impacts to vegetation communities, one special-status plant species – sticky geranium – and special-status wildlife species. Additional mitigation will be required for desert beauty, Jacumba milk-vetch and Tecate cypress because the site does not support sufficient populations of these two species. The site has not yet been evaluated for Tecate tarplant, and a survey pass for this species is scheduled for fall 2013.

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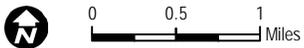
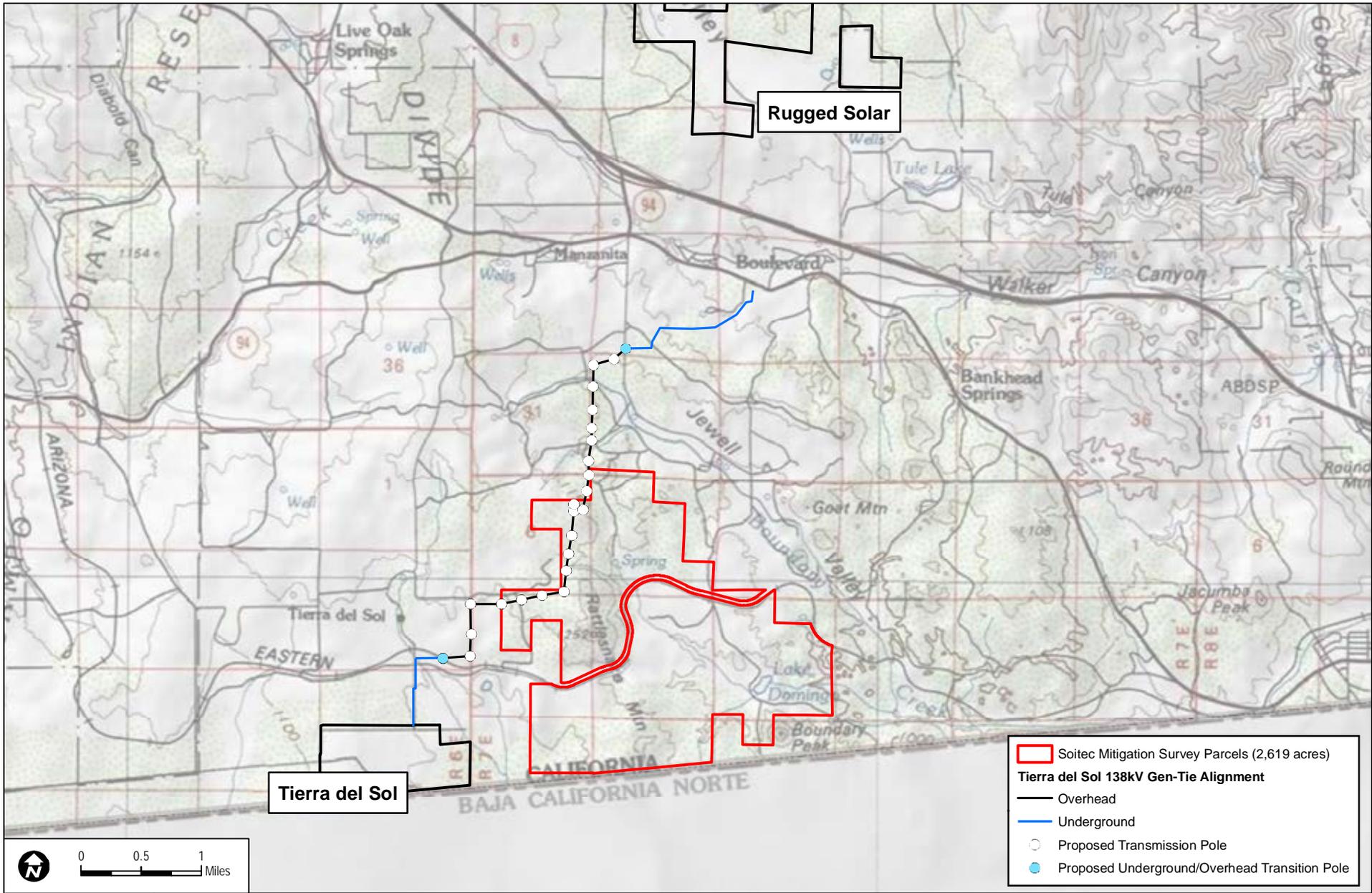


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EVALUATION OF BIOLOGICAL RESOURCES FOR THE SOITEC MITIGATION SITE

FIGURE 1
Regional Map



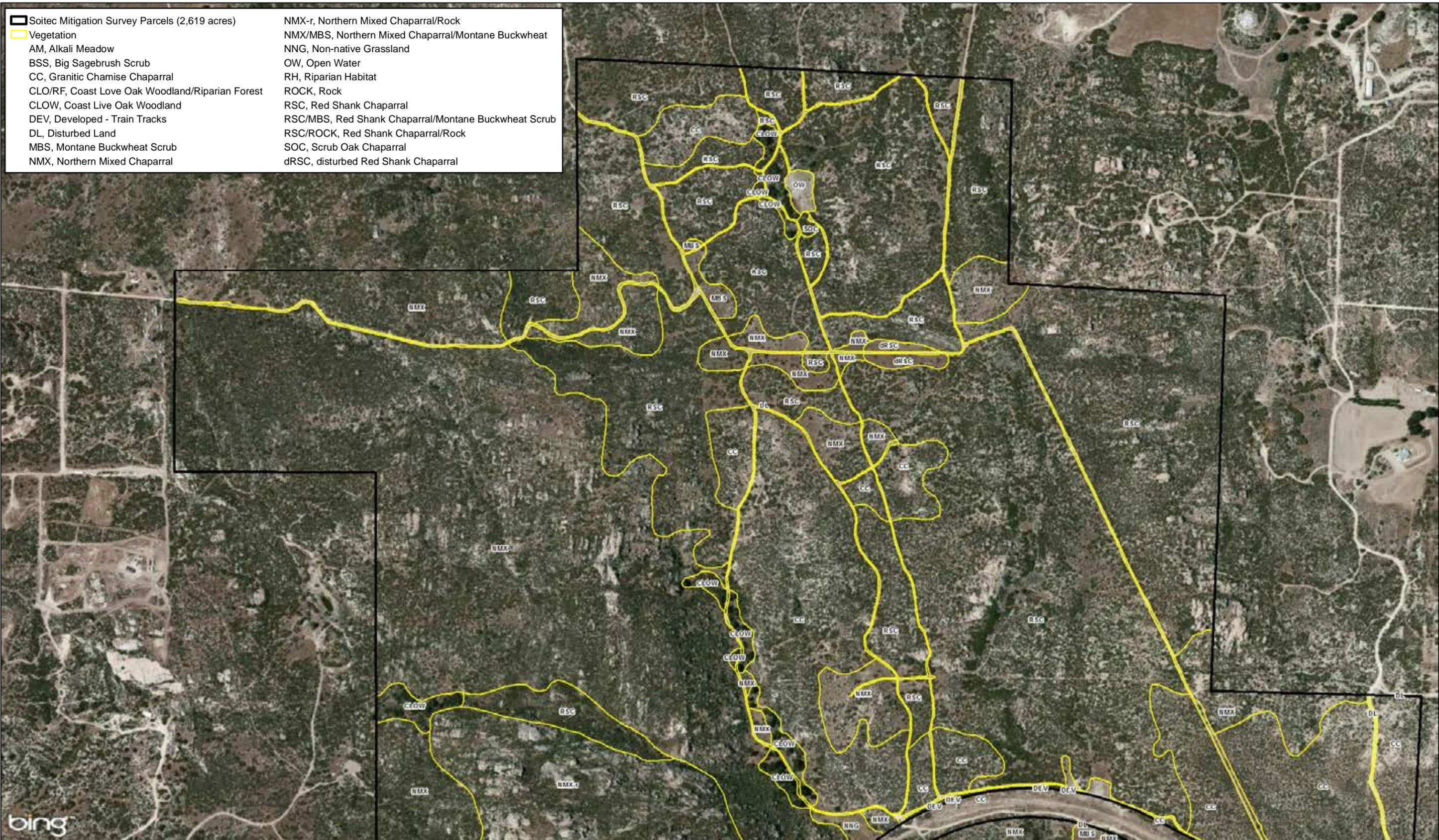
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SOURCE: USGS 7.5' Live Oak Springs and Tierra del Sol Quadrangles

FIGURE 2
Vicinity Map

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EVALUATION OF BIOLOGICAL RESOURCES FOR THE SOITEC MITIGATION SITE



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0 250 500 Feet

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EVALUATION OF BIOLOGICAL RESOURCES FOR THE SOITEC MITIGATION SITE

FIGURE 3a
Vegetation Communities

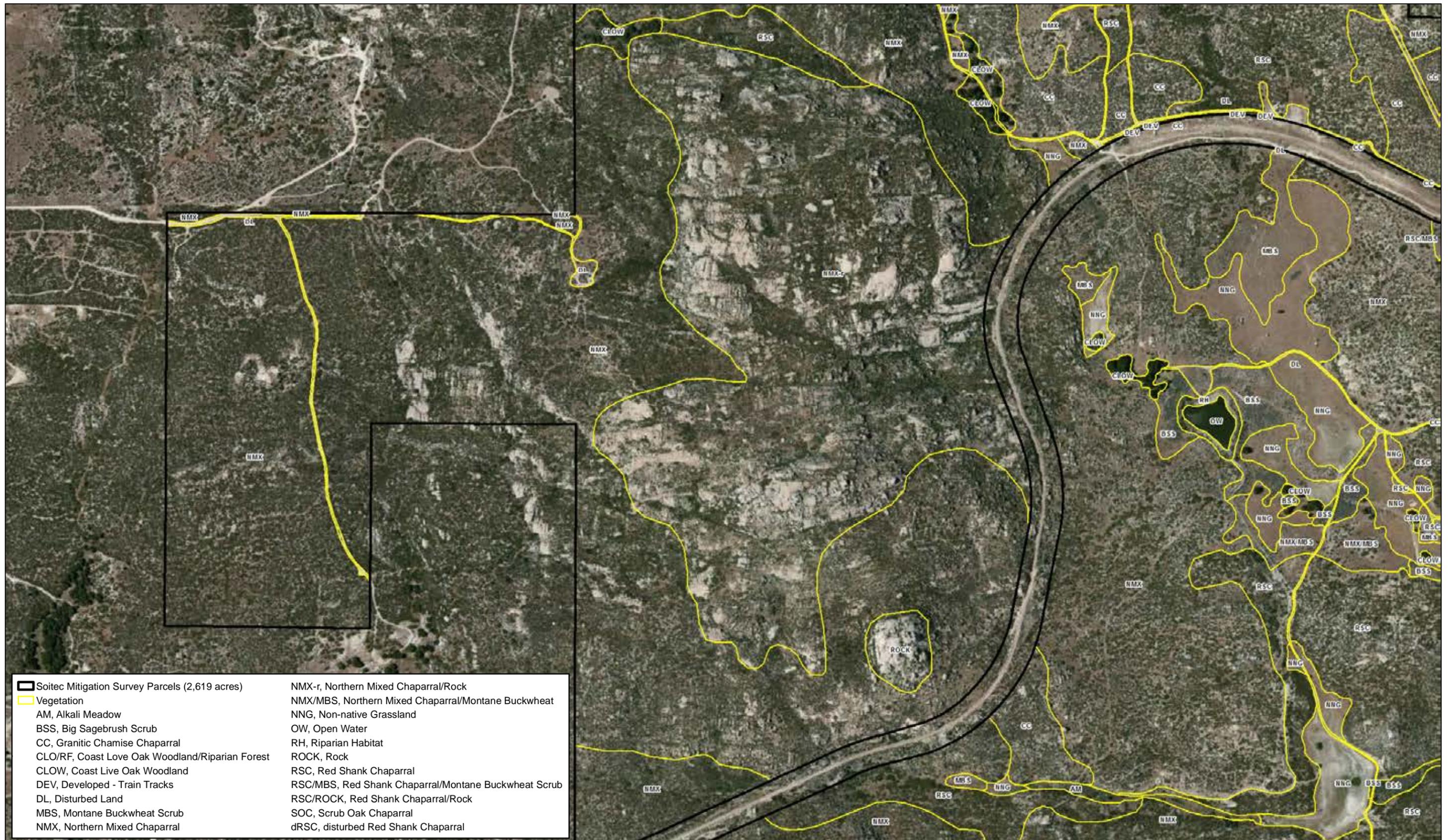
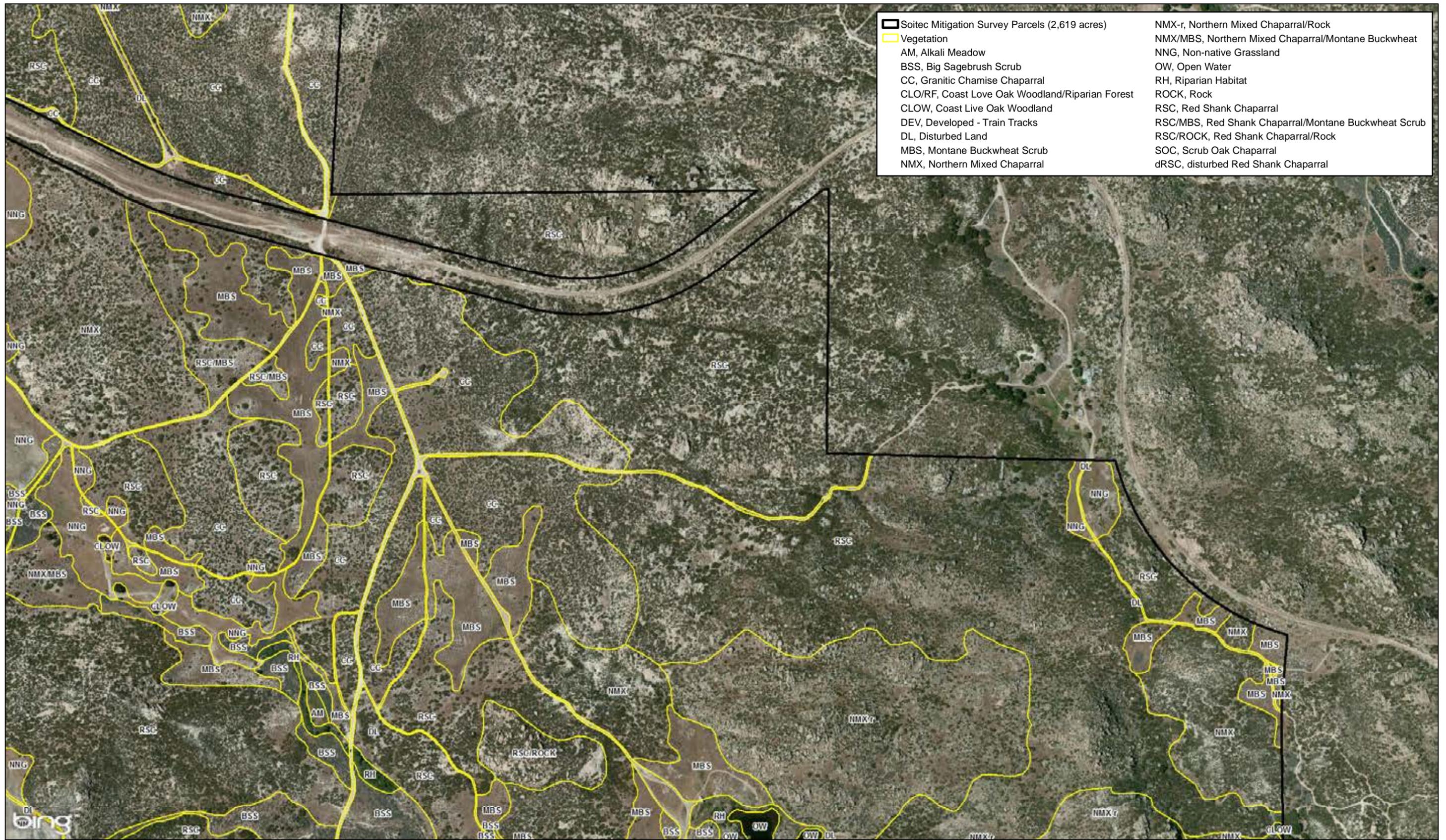


FIGURE 3b
Vegetation Communities

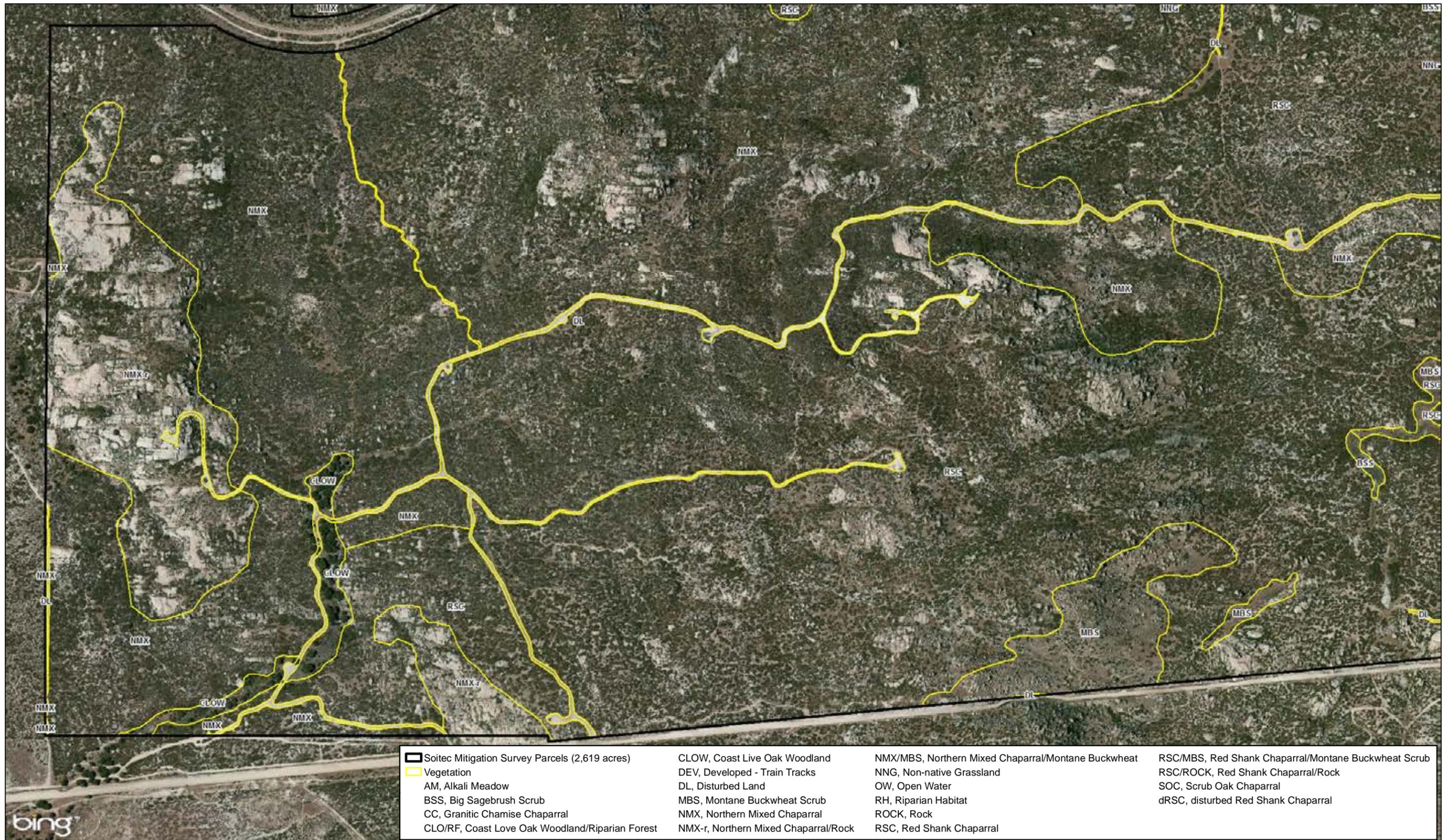


DUDEK 0 250 500 Feet

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FIGURE 3c
Vegetation Communities

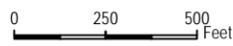
EVALUATION OF BIOLOGICAL RESOURCES FOR THE SOITEC MITIGATION SITE



| | | | |
|--|---|--|---|
| <ul style="list-style-type: none"> ▭ Soitec Mitigation Survey Parcels (2,619 acres) ▭ Vegetation AM, Alkali Meadow BSS, Big Sagebrush Scrub CC, Granitic Chamise Chaparral CLO/RF, Coast Live Oak Woodland/Riparian Forest | <ul style="list-style-type: none"> CLOW, Coast Live Oak Woodland DEV, Developed - Train Tracks DL, Disturbed Land MBS, Montane Buckwheat Scrub NMX, Northern Mixed Chaparral NMX-r, Northern Mixed Chaparral/Rock | <ul style="list-style-type: none"> NMX/MBS, Northern Mixed Chaparral/Montane Buckwheat NNG, Non-native Grassland OW, Open Water RH, Riparian Habitat ROCK, Rock RSC, Red Shank Chaparral | <ul style="list-style-type: none"> RSC/MBS, Red Shank Chaparral/Montane Buckwheat Scrub RSC/ROCK, Red Shank Chaparral/Rock SOC, Scrub Oak Chaparral dRSC, disturbed Red Shank Chaparral |
|--|---|--|---|

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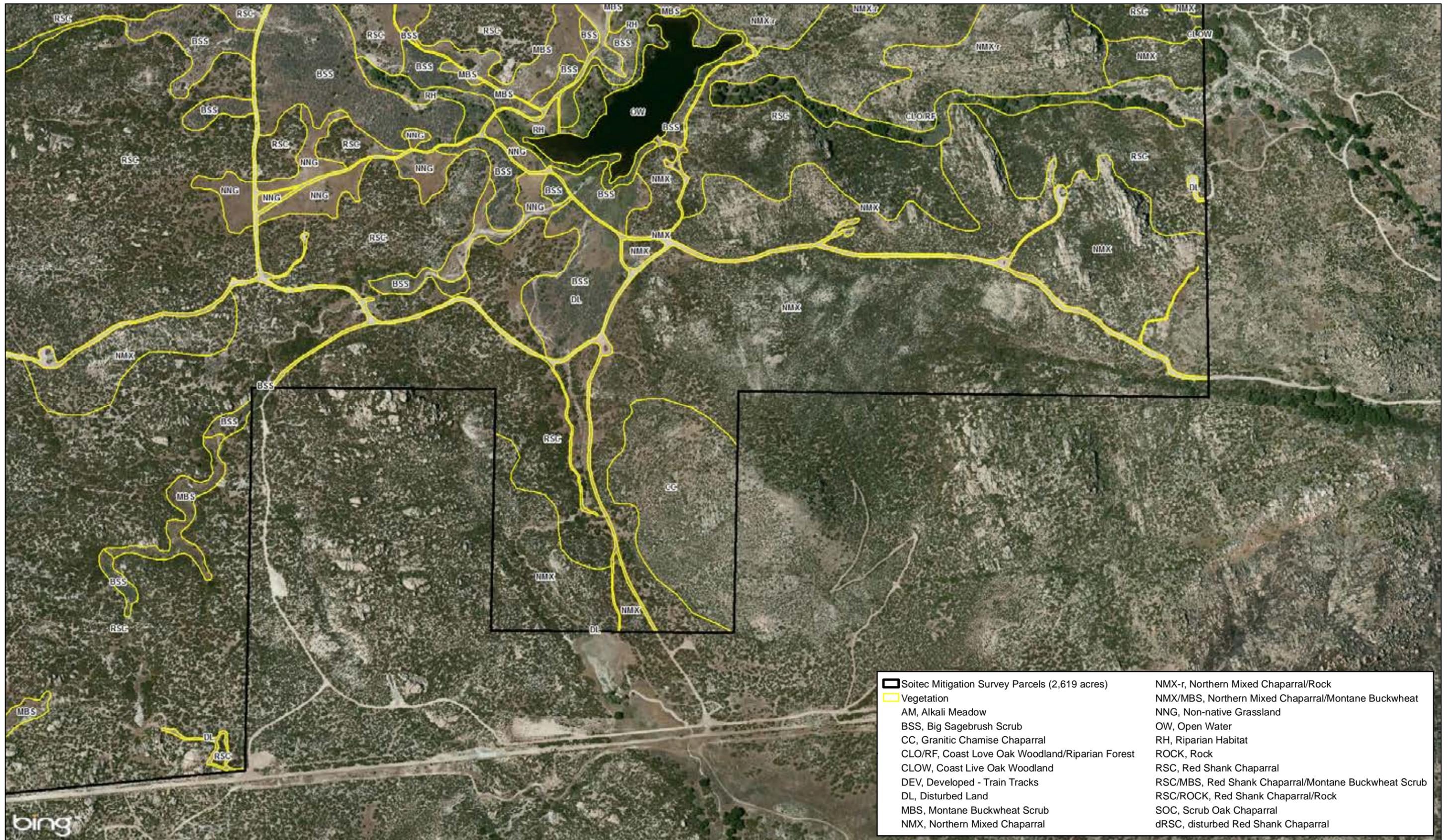
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EVALUATION OF BIOLOGICAL RESOURCES FOR THE SOITEC MITIGATION SITE

FIGURE 3d
Vegetation Communities



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EVALUATION OF BIOLOGICAL RESOURCES FOR THE SOITEC MITIGATION SITE

FIGURE 3e
Vegetation Communities

