Delaney Aggregates Biological Resources Assessment

Stanislaus County
CALIFORNIA

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Terms:

- Project Area: Approximately 40-acre area in which activity and direct (e.g. physical) impacts occur; specifically, sand and gravel extraction areas and sorting and washing areas.

- Delaney Property: An area encompassing the approximately 200 acre property. The Delaney Property was traversed and analyzed during the initial site visit in the Fall of 2007. The Project Area occurs in the northern portion of the Delaney Property.

- Wildlife Survey Area: Area that extends within a 0.5-mile radius from the Project Area boundary in which wildlife surveys were conducted.

1.0 INTRODUCTION

On September 6, 2007, WRA performed a site visit to assess the current biological constraints at Delaney Aggregates (Delaney Property, Project Area) in Stanislaus County, California (Figure 1). The purpose of the assessment was to determine the biological conditions of the parcel.

A biological assessment provides general information on the potential presence of sensitive species and habitats. The biological assessment is not an official protocol level survey for listed species that may be required for project approval by local, state, or federal agencies. However, specific findings on the occurrence of any species or the presence of sensitive habitats may require that protocol surveys be conducted. Additional protocol level surveys and habitat assessments were conducted by WRA in Spring 2008. A protocol level survey was completed for Swainson's Hawk, Bald Eagle, and White-tailed Kite (WRA 2008), and species specific assessments were completed during the protocol level survey for the California Tiger Salamander and San Joaquin Kit Fox (WRA 2008). This assessment is based on information available at the time of the study, on results from subsequent surveys, and on site conditions that were observed on the date of the site visit.

In January, 2008, a reclamation plan was created for the Delaney Aggregates site (EnviroMINE, Inc) outlining excavation areas, staging areas, and a reclamation area. Impact analysis is based on biological resources and proposed project activities within the excavation and staging areas (Project Area, Figure 2).

1.1 General Delaney Property Description

Delaney Aggregates is located adjacent to and south of Lake Road, approximately four miles west of the City of La Grange, Stanislaus County, California. The site is approximately 200 acres of land located across Lake Road from the Tuolumne River. The property is adjacent to the Turlock Irrigation District (TID) Main Canal on the southern side, and the Joe Domecq Wilderness Area on the eastern side. Surrounding lands to the west are characterized as grazing land and orchard agriculture. To the north, beyond Lake Road, open space lands slope down into the Tuolumne River floodplain. Vegetation communities within the property include ruderal and non-native grassland, riparian forest, oak habitats and dredge tailing ponds. The roughly triangular-shaped Delaney Property consists of non-native grasslands along an upper, southern plateau, extending down to the north through blue oak woodlands into disturbed habitat interspersed with riparian vegetation among historic tailings and test pit rock piles. Due to past mining activities in northern portions of the property, the majority of the property is characterized as disturbed habitat, reducing its value for special status species.

Several proposed aggregate mining locations form the approximate 40-acre Project Area, which is primarily comprised of open cobble substrate with patchy ruderal and non-native grassland growth.

1.2 Project Description

The proposed Delaney Aggregates project will extract 1,500,000 cubic yards of sand and gravel from the property for construction aggregate purposes. The project has been designed to avoid sensitive habitat communities. The reclamation plan area covers approximately 80 acres of the 197 acre property. Extraction activities will occur within four separate areas within the northern portion of property, totaling approximately 36 acres. The remaining 39 acres consists of setback areas to

be planted with native vegetation and buffer areas that were included to maintain a simple reclamation plan boundary. Additional activities such as roads, stockpiles, and the operations areas are expected to total approximately five acres. The site is planned to operate continually over a ten-year period with an estimated annual production of 150,000 cubic yards.

Materials will be extracted from within the four phases to establish a series of ponds. The ponds will range in size from approximately two to 22 acres with a maximum depth of 40 feet below the existing ground surface.

2.0 METHODS

On September 6, 2007, the Delaney Property was traversed on foot to determine (1) plant communities present within the site, (2) if existing conditions provided suitable habitat for any special status plant or wildlife species, and (3) if sensitive habitats are present.

2.1 Biological Communities

The Soil Survey of Stanislaus County, California [Natural Resources Conservation Service map of eastern Stanislaus County [(NRCS) U.S. Department of Agriculture (USDA) 2007] was examined to determine if any unique soil types that could support sensitive plant communities and/or aquatic features were present on site. Biological communities present in the Delaney Property were classified based on existing plant community descriptions described in the *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986). However, in some cases it is necessary to identify variants of community types or to describe non-vegetated areas that are not described in the literature.

2.1.1 Non-sensitive Biological Communities

Non-sensitive biological communities are those communities that are not afforded special protection under CEQA, and other state, federal, and local laws, regulations and ordinances. These communities may, however, provide suitable habitat for some special status plant or wildlife species and are identified or described in Section 3.1.1 below.

2.1.2 Sensitive Biological Communities and Aquatic Features

Plant communities and aquatic features identified within the Delaney Property were evaluated to determine if they are considered sensitive. Sensitive biological communities are defined as those communities that are given special protection under CEQA and other applicable federal, state, and local laws, regulations and ordinances.

<u>Riparian Habitat</u>

An inspection of the Delaney Property was conducted to determine if the banks of drainages, streams and other aquatic features within the Delaney Property supported riparian species (hydrophytic or stream-dependent woody plants). Streams supporting riparian vegetation were noted and the width of the riparian habitat on each side of the stream was estimated and mapped using ArcGIS software.

Wetlands and Waters

Any potential wetland areas were identified as areas dominated by plant species with a wetland indicator status[1] of OBL, FACW, or FAC as given on the U.S. Fish and Wildlife Service List of Plant Species that Occur in Wetlands (Reed 1988). Evidence of wetland hydrology can include direct evidence (primary indicators), such as visible inundation or saturation, surface sediment deposits, algal mats and drift lines, or indirect indicators (secondary indicators), such as oxidized root channels. Some indicators of wetland soils include dark colored soils, soils with a sulfidic odor, and soils that contain redoximorphic features as defined by the Corps Manual (Environmental Laboratory, 1987) and Field Indicators of Hydric Soils in the United States (NRCS, 2002). A formal protocol level wetland determination was not completed.

[1] OBL = Obligate, always found in wetlands (> 99% frequency of occurrence); FACW = Facultative wetland, usually found in wetlands (67-99% frequency of occurrence); FAC = Facultative, equal occurrence in wetland or non-wetlands (34-66% frequency of occurrence).

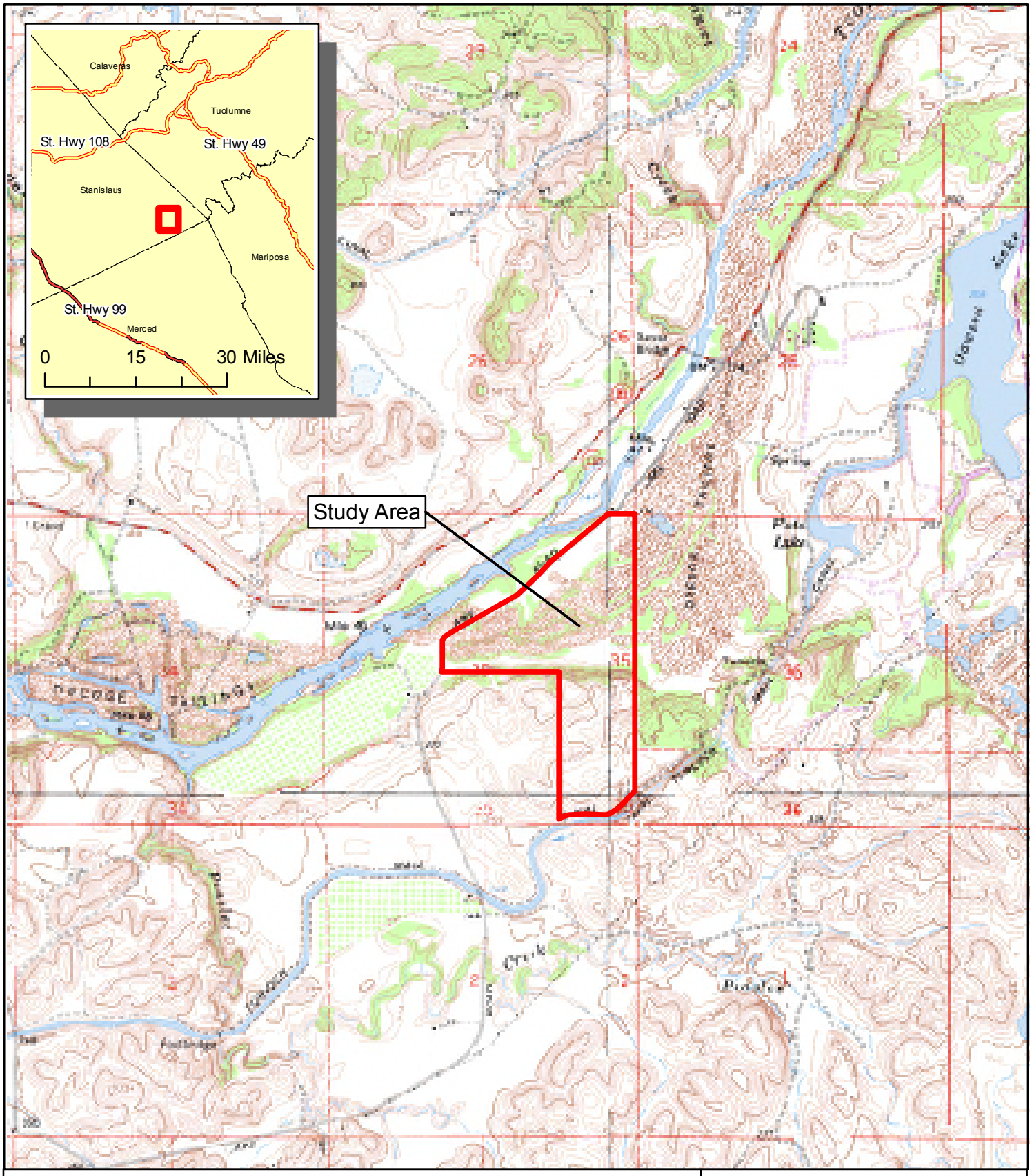

Figure 1. Study Area Location Map

Delaney Aggregates Mine Site
Stanislaus County, California

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Date: May 2008
Basemap: USGS Topo Quad
Map By: Derek Chan
Filepath: L:\Acad 2000Files\17000\17097\GIS\ArcMap\Fig1_LocMap_20080501.mxd

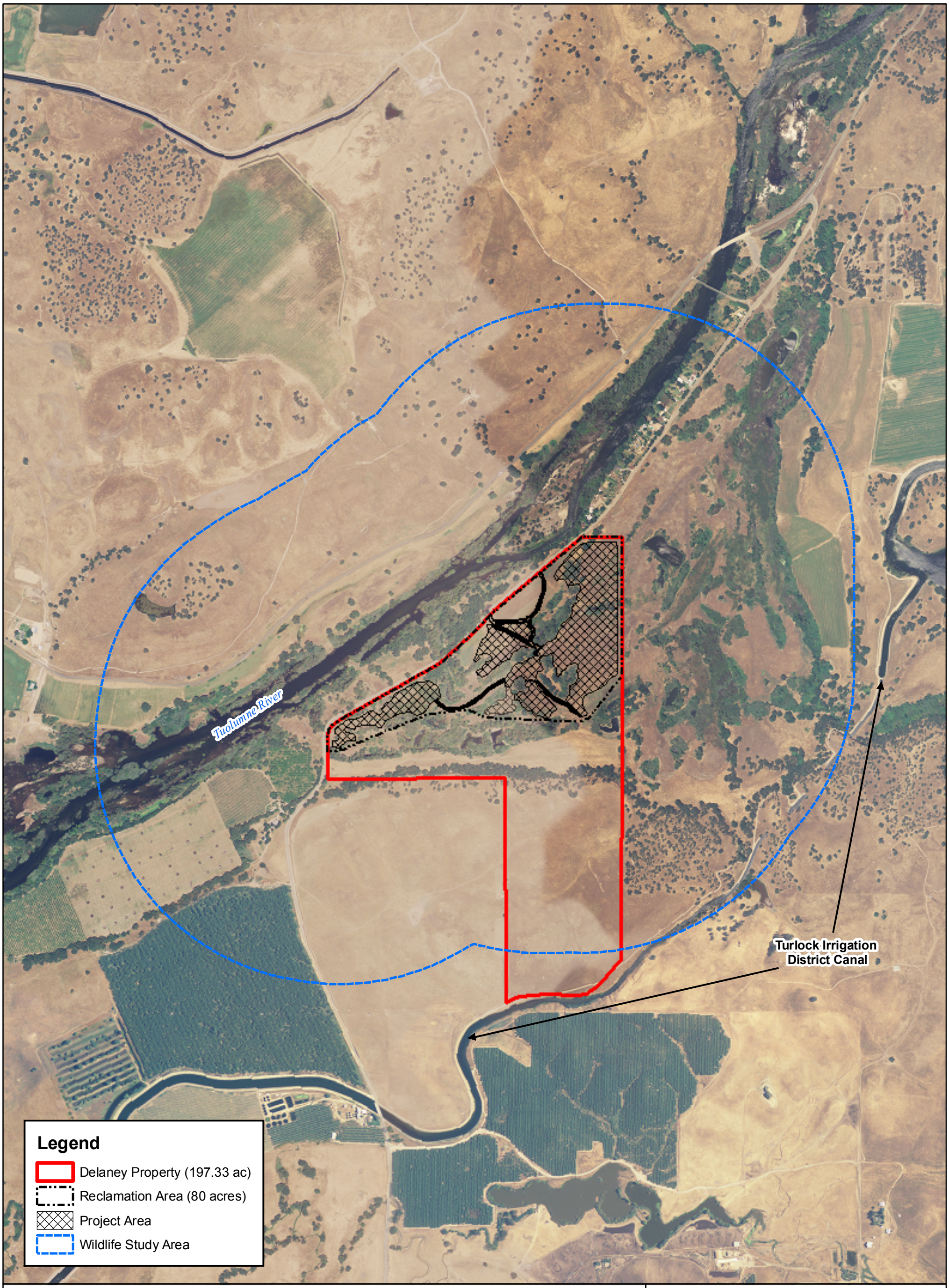

Figure 2. Project and Study Areas

Delaney Aggregates
Stanislaus County, California

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Date: May 2008
Image Date: 2005
Image Source: NAIP
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Fig2_SiteMap_06_10_08.mxd

The preliminary "waters" assessment was based primarily on the presence of unvegetated, ponded areas or flowing water, or evidence indicating their presence such as a high water mark or a defined drainage course.

2.2 Special Status Species

2.2.1 Literature Review

Prior to visiting the site, potential occurrence of special status species in the Delaney Property was evaluated by first determining which special status species occur in the vicinity of the Delaney Property through a literature and database search. Database searches for known occurrences of special status species focused on the Cooperstown 7.5 minute USGS quadrangle and the eight surrounding USGS quadrangles: La Grange, Keystone, Chinese Camp, Moccasin, Penon Blanco Peak, Turlock Lake, Snelling and Merced Falls. The following sources were reviewed to determine which plant and wildlife species have been documented to occur in the vicinity of the Delaney Property:

- California Natural Diversity Database records (CNDDB) (CDFG 2008)
- CNPS Electronic Inventory records (CNPS 2008)
- CDFG publication "California's Wildlife, Volumes I-III" (Zeiner et al. 1990)
- A Field Guide to Western Reptiles and Amphibians (Stebbins, R.C. 2003)
- Fairy Shrimps of California's Puddles, Pools and Playas (Eriksen and Belk 1999)
- University of California at Davis Information Center for the Environment Distribution Maps for Fishes in California (2007)
- National Marine Fisheries Service Distribution Maps for California Salmonid Species (2007)
- Natural Resources Conservation Service map of eastern Stanislaus County [(NRCS) U.S. Department of Agriculture (USDA) 2007]

2.2.2 Site Assessment

A site visit was made to the Delaney Property to search for suitable habitats for species identified in the literature review as occurring in the vicinity. The potential for each special status species to occur on the property was then evaluated according to the following criteria:

1) No Potential. Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).

2) Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.

3) Moderate Potential. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.

4) High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.

5) Present. Species is observed on the site or has been recorded (i.e. CNDDB, other reports) on the site recently.

The site assessment is intended to identify the presence or absence of suitable habitat for each special status species known to occur in the vicinity in order to determine its potential to occur within the Delaney Property boundaries. The site visit does not constitute a protocol-level survey and is not intended to determine the actual presence or absence of a species; however, if a special status species is observed on-site during the site visit, its presence will be recorded and discussed.

3.0 RESULTS

The following sections present results from the biological resources analysis conducted during the site visit. All plant and wildlife species encountered were recorded, and are summarized in Appendix A. Appendix B presents the evaluation of potential for occurrence of each special status plant and wildlife species known to occur in the vicinity of the Project Area with their habitat requirements, potential for occurrence, and rationale for the classification based on criteria listed above.

3.1 Biological Communities

Descriptions for each biological community present within the Project Area and adjacent areas are contained below. Figure 2 shows the general location and extent of the biological communities observed. Representative site photographs of biological communities and related habitats are shown in Appendix C.

3.1.1 Non-Sensitive Communities within the Project Area

Great Valley Willow Scrub

Great Valley willow scrub typically occurs along major rivers and most of the smaller streams throughout the Great Valley watershed (Holland 1986). An open to dense, broadleafed, winter-deciduous shrubby thicket, this habitat is dominated by any of several willow species. Characteristic species present include sandbar willow *(Salix hindsiana*), arroyo willow (*Salix lasiolepis*), cottonwood (*Populus fremontii*), and California rose (*Rosa californica*). Great valley willow scrub occurred predominantly in the western portion of the Project Area and along dredge tailings at the boundary of the Project Area, adjacent to great valley oak riparian forest and great cottonwood riparian forest communities.

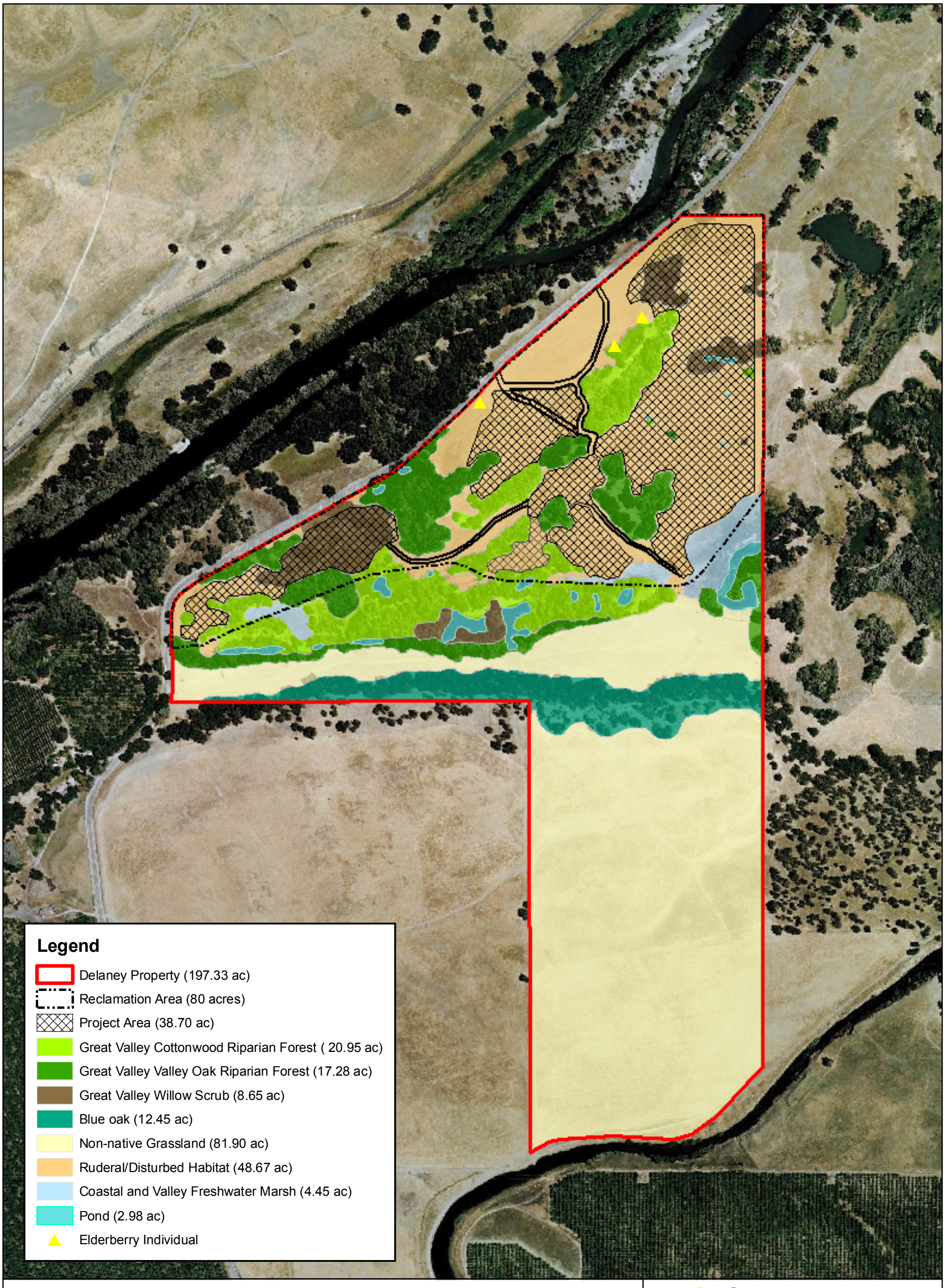

Figure 3. Vegetation Communities within the Delaney Property

Delaney Aggregates
Stanislaus County, California

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Date: May 2008
Image Date: 2004
Image Source: TerraServer
Map By: Derek Chan
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Ruderal Habitat

Although not described in the literature, ruderal habitat includes areas that have been used or developed in some manner and may contain some ruderal herbaceous weeds, but are no longer in a natural state. In the northern, level portion of the property, areas have been previously disturbed by dredging activities and are dominated by ruderal habitat. Plant species observed in areas disturbed by dredging activities include yellow star thistle (*Centuarea solstitialis*), Italian thistle (*Carduus pycnocephalus*), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), black mustard (*Brassica nigra*) , and fennel (*Foeniculum vulgare*).

3.1.2 Non-Sensitive Communities within the Delaney Property

Non-native Annual Grassland

Non-native annual grassland typically occurs in open areas of valleys and foothills throughout California, usually on fine textured clay or loam soils that are somewhat poorly drained (Holland 1986). Non-native grassland is typically dominated by non-native annual grasses and forbs that occur together with scattered native wild flowers. Common species found in the non-native grasslands of northern and central California include wild oats (*Avena* sp.), brome grasses (*Bromus* sp.), wild barley (*Hordeum* sp.), Italian and perennial ryegrass (*Lolium multiflorum* and *Lolium perenne*), field bindweed (*Convolvulus arvensis*), fiddleneck (*Amsinckia* sp.), and California poppy (*Eschscholzia californica*), among many other species. Non-native grassland communities in the Delaney Property are dominated by soft chess (*Bromus hordeaceus*), slender wild oat (*Avena barbata*), and ripgut brome (*Bromus diandrus*). Non-native annual grassland occurs in disturbed areas of the site and on grazed land within the southern portion the Delaney Property.

3.1.3 Sensitive Biological Communities within the Project Area

No sensitive biological communities occur within Project Area boundaries.

3.1.4 Sensitive Biological Communities within the Delaney Property

Blue Oak Woodland

The blue oak woodland community applies to forests, woodlands, and savannah dominated by blue oak (*Quercus douglasii*). This community is common throughout central and northern California from 100-5000 feet and consists of an open to closed tree canopy with or without shrubs and an understory of grasses and herbs (Holland 1986). This habitat is dominated by blue oak trees which vary in density to form closed-canopy woodland habitat when dense to an open savannah dotted with trees when sparse. The understory is composed of non-native annual grassland. Blue oak woodland occurred on slope of the ridge in the southern portion of the Delaney Property. This community does not occur within the Project Area. This community does not occur within the Project Area.

Great Valley Cottonwood Riparian Forest

According to Holland (1986), this habitat generally occurs on fine-grained alluvial soils near perennial streams. A dense, broadleafed, winter deciduous forest, great valley cottonwood riparian forest is dominated by cottonwood (*Populus fremontii)* and Goodding's willow (*Salix gooddingii*).

Understory vegetation often includes Oregon ash (*Fraxinus latifolia*), sandbar willow (*Salix hindsiana)*, and shade-tolerant plant species. Great valley cottonwood riparian forest occurred predominantly in the southwest portion of the Delaney Property and along dredge tailings, and does not occur in the Project Area.

Great Valley Valley Oak Riparian Forest

Holland (1986) describes this habitat as a medium to tall broadleafed, winter decidous, closed-canopy riparian forest dominated by valley oak (*Quercus lobata*). Understories include scattered Oregon ash (*Fraxinus latifolia),* northern California black walnut (*Juglans hindsii),* and California sycamore (*Platanus racesmose)*. Additional characteristic species include creeping wild-rye (*Leymus triticoides)*, blackberry (*Rubus* sp.) and poison oak (*Toxicodendron diversilobum*). Great valley valley oak riparian forest occurred predominantly in the southwest portion of the Delaney Property and along dredge tailings. This community does not occur in the Project Area.

3.1.5 Aquatic Features

Design of the Project Area avoids all potentially jurisdictional aquatic features on the site. Within the Project Area, a number of test pits were dug for cobble depth profiles in 2003 and 2005 and some have established wetland vegetation including cattails and bulrush (Appendix C, photos 2 and 10). These pits total 0.5 acre and, since they were formed as a result of preliminary construction and mining activities dug on dry land, they are exempt from Corps Section 404 jurisdiction (Section 323.4, Federal Register).

Aquatic features in the Delaney Property include 4.45 acres of coastal and valley freshwater marsh, and 2.98 acres of ponded areas. These habitats are illustrated on Figure 3 and in the following table. Acreage calculations are considered preliminary since a protocol level delineation of wetlands and "Waters of the U.S." was not conducted. Water features located on th Delaney Property occur outside of the FEMA 100-year flooding zone for the Tuolumne River with the exception of two ponds along the northern boundary of the Delaney Property.

Table1. Aquatic features within the Delaney Property.

Sensitive Habitat Type	Size (acre)
Project Area	
Ponds (jurisdictionally exempt)	0.5
Delaney Property	
Ponds	2.48
Wetland	4.45
TOTAL	**7.43 acres**

3.2 Special Status Species

3.2.1 Plants

There are no previously documented occurrences of special status plant species within the Delaney Property. Based upon a review of the aforementioned resources and databases, 24 special status plant species have been documented in the general vicinity of the site. The Project Area does not contain suitable habitat for any special status plant species. Appendix B summarizes the potential for occurrence for these plant species in the Project Area. The Delaney Property contains suitable habitat for 14 of these species. CNDDB special status plant occurrences within a five-mile radius of the Project Area are shown in Figure 4.

Species with Potential to Occur within the Project Area

Plant species documented in the vicinity were considered to be unlikely to occur within the Project Area due to incompatible elevation ranges, unsuitable substrate, and the overall disturbed condition of the dredge tailings present at the site (Appendix C, site photos 6, 8, and 9).

Hoover's Calycadenia (*Calycadenia hooveri*) and Merced monardella *(Monardella leucocephala*) have documented occurrences within two miles of the Project Area. However, the cobble substrate and disturbed conditions within the Project Area are unsuitable habitat for these two species. In addition, the last documented occurrence of the Merced monardella at the aforementioned location near La Grange was in 1896. The CNDDB record for this occurrence notes the population is "certainly extinct at this site" (CNDDB, 2008).

Hartweg's golden sunburst (*Pseudobahia bahiifolia*) and Succulent owl's clover (*Castilleja campestris ssp. succulenta*) are State and/or Federally listed plant species with documented occurrences within five miles of the Project Area. These two species are unlikely to occur in the Project Area due to the cobble substrate and disturbed habitat conditions. In addition, succulent owl's clover is usually found within vernal pool habitat; no vernal pool habitat occurs within the Project Area.

Species with Potential to Occur within the Delaney Property

Species that have a moderate potential for occurrence within the Delaney Property are Rawhide Hill onion (*Allium tuolumnense*), Chinese Camp brodiaea (*Brodiaea pallida*), Hoover's calycadenia (*Calycadenia hooveri*), beaked clarkia (*Clarkia rostrata*), dwarf downingia (*Downingia pusilla*), spiny-sepaled button celery *(Eryngium spinosepalum*), Merced monardella (*Monardella leucocephala*), Red Hills ragwort *(Packera clevelandii var. heterophylla*), Layne's ragwort (*Packera layneae*), Hairy Orcutt Grass (*Orcuttia pilosa*), and Californian vervain (*Verbena californica*).

Three plant species have a high potential for occurrence on the Delaney Property: Hoover's cryptantha (*Cryptantha hooveri*), Delta button-celery (*Eryngium racemosum*), and knotted rush (*Juncus nodosus*).

The September 2007 site assessment occurred during the blooming period of Hoover's calycadenia, Hoover's spurge, Delta button-celery, knotted rush, San Joaquin Valley Orcutt grass, hairy Orcutt grass, and California vervain, none of which were observed within the Delaney Property.

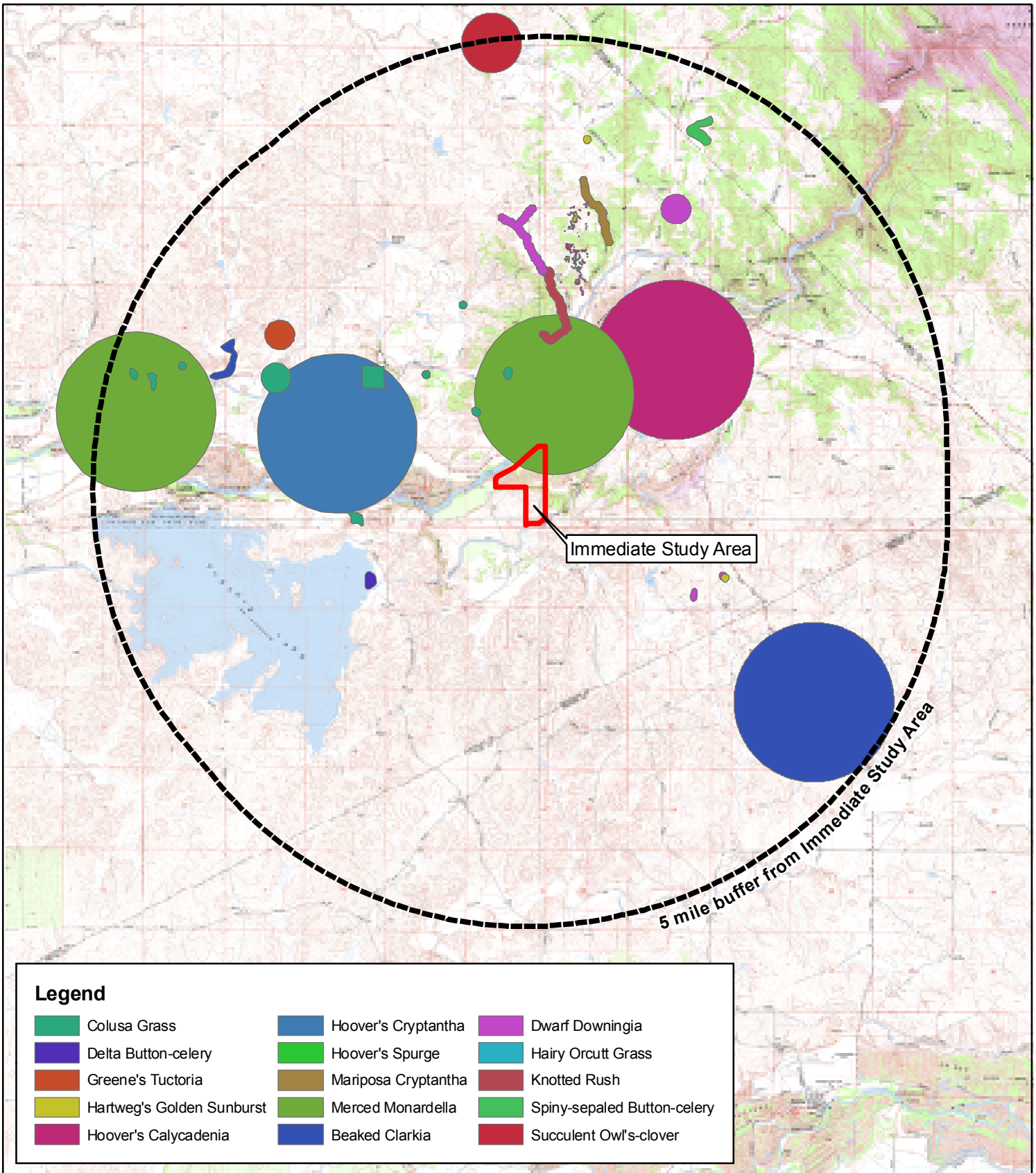

Figure 4. Special Status Plant Occurences within Five miles of the Immediate Study Area

Delaney Aggregates Mine Site
Stanislaus County, California

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Date: October 2007
Basemap: USGS Topo Quad
Map By: Derek Chan
Filepath: L:\Acad 2000Files\17000\17097\GIS\ArcMap\Oct_revisions\Fig4_CNDDB_plant_20071019.mxd

3.2.2 Wildlife

Sixty-five special status species of wildlife have been recorded in the vicinity of the Project Area or in similar habitats within Stanislaus County. The Project Area contains marginal habitat for three of these species: San Joaquin Kit Fox (*Vulpes macrotis mutica*), White-tailed Kite (*Elanus leucurus*), and Loggerhead Shrike (*Lanius ludovicianus*). Appendix B summarizes the potential for each of these species to occur within the Project Area. The Delaney Property contains suitable habitat for 19 of these species. CNDDB special status wildlife occurrences within a five-mile radius of the Project Area are shown in Figure 5.

The remaining sixty-two special status wildlife species documented within the nine surrounding quadrangles were considered to unlikely to occur or were considered not present within the Project due to unsuitable habitat conditions, a lack of essential resources, and/or a history of incompatible land uses in the Project Area.

Thirty-one identified species of wildlife were observed in or adjacent to the Project Area during the site assessment (Appendix A). Most of the wildlife observed in the Project Area are commonly found, non-special status species.

Species with Potential to Occur within the Project Area

Three special status wildlife species have a low to moderate potential to occur in the Project Area, either to temporarily forage or migrate or occasionally nest: San Joaquin Kit Fox (*Vulpes macrotis mutica*), White-tailed Kite (*Elanus leucurus*), and Loggerhead Shrike (*Lanius ludovicianus*). Surveys conducted by WRA in March and April 2008, found no evidence of White-tailed Kite or Loggerhead Shrike nesting in the Project Area. A habitat assessment and Early Evaluation for San Joaquin Kit Fox was conducted in March 2008, which concluded only low quality foraging and dispersal habitat is present for San Joaquin Kit Fox. Potential denning habitat is not available due to the absence of loose-textured soil in the Project Area.

Potential presence for California Tiger Salamander (CTS) in the Project Area was also evaluated during a March 2008 habitat assessment. WRA determined that aquatic habitat in the Project Area does not provide suitable breeding habitat for CTS due relatively recent construction of these habitats. Furthermore, test pit banks are steeply sloped and do not provide juvenile CTS a way to exit ponds once the water level drops below the edge of bank. No suitable upland estivation habitat was observed in Project Area due to the accumulation of aggregates and tailings throughout the Project Area and Wildlife Survey Area. No upland or migration habitat is present between documented occurrences to the north and east of the Project Area.

Species with Potential to Occur within the Wildlife Survey Area

Four special status wildlife species have a moderate or high potential to occur in the Delaney Property, including: Swainson's Hawk (*Buteo Swainsonii*), Bald Eagle (*Haliaeetus leucocephalus*), California tiger salamander (*Ambystoma californiense),* and valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*). Surveys were conducted in March and April 2008 for Swainson's Hawk and Bald Eagle with negative findings in both the Delaney Property and Wildlife Survey Area. CNDDB special status wildlife occurrences within a five-mile radius of the Project Area are shown in Figure 5.

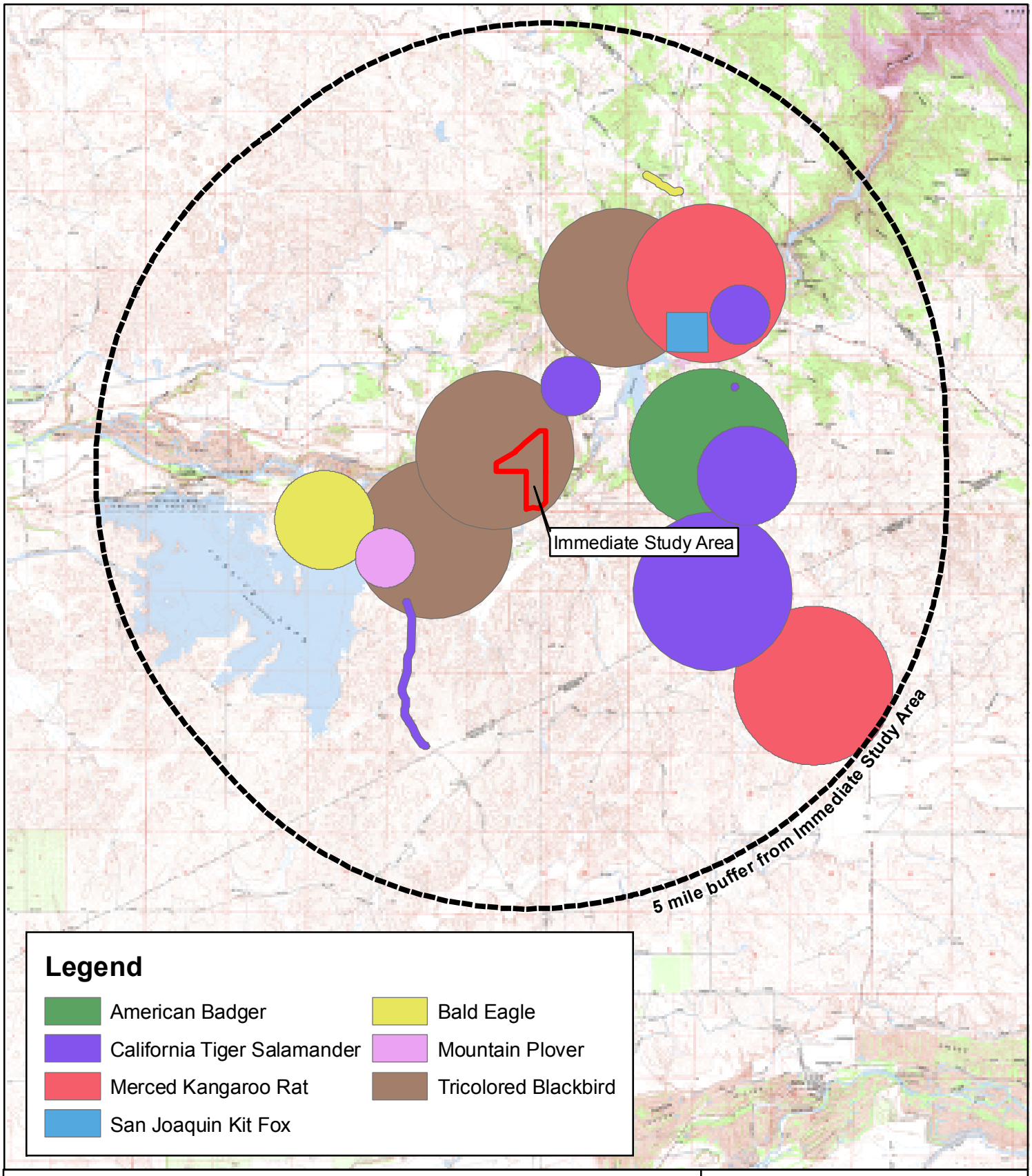

Figure 5. Special Status Wildlife Occurences within Five miles of the Immediate Study Area

Delaney Aggregates Mine Site
Stanislaus County, California

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Date: October 2007
Basemap: USGS Topo Quad
Map By: Derek Chan
Filepath: L:\Acad 2000Files\17000\17097\GIS\ArcMap\Oct_revisions\Fig4_CNDDB_animal_20071019.mxd

The four state or federal listed species with a moderate or high potential to occur in the Delaney Property, or those species with USFWS Critical Habitat designations on or within one mile of the Project Area are discussed further below:

San Joaquin Kit Fox (*Vulpes macrotis mutica*), Federal Endangered Species; State Threatened Species. In the northern portion of its range, San Joaquin Kit Fox (SJKF) typically occur in grassland habitats supporting California ground squirrel populations. Ground squirrels are important as both a prey item and a source of den habitat. The Project Area is just within the historic eastern range of SJKF (USFWS 1998; CDFG 2005;). If populations of SJKF remain extant in the vicinity, this wide-ranging species has a moderate to low potential to occur in the Delaney Property because potentially suitable habitat conditions exist on site outside of the Project Area. Potential barriers to SJKF long-range dispersal into the Project Area from the north and east may include the Tuolumne River and the TID Main Canal, respectively. Two historic occurrences of the species, most recently from 1973, are documented approximately 2.5 miles east of the Project Area south of the Tuolumne River.

An Early Evaluation conducted on March 31, 2008 determined potential denning habitat is present in non-native grassland habitat located on the southern portion of the Delaney property. The northern portion of the Delaney property does not contain loose-textured soils needed for burrowing mammals and therefore does not provide suitable denning habitat. Due to the absence of burrowing mammals in the northern portion of the property (including the Project Area), this area is considered only marginal habitat for foraging and dispersal.

Swainson's Hawk (*Buteo swainsoni*), State Threatened. Swainson's Hawk is an uncommon breeding resident and migrant in the Central Valley of California. In the Central Valley, hawks forage in row, grain, and hay crop agriculture, ruderal fields, non-native grasslands, fields, open graze lands and flood plains. This species typically nests in tall, scattered trees within grassland, shrubland, or agricultural landscapes (e.g., along stream courses or in open woodlands). Central Valley nests are typically at edge of narrow bands of riparian vegetation, in isolated oak woodland, and in lone trees, roadside trees, or farmyard trees, as well as in adjacent urban residential areas.

Due to the presence of an aggregate substrate base, suitable cover for burrowing mammals and reptiles is predominantly absent in the Project Area. Based on the lack of suitable cover and absence of burrows, it is evident that prey abundance and availability is insufficient to support foraging raptors in the Project Area. More suitable foraging habitat exists in the surrounding agricultural lands and open grassland habitat to the west and north of the Project Area, and in the southern portion of the Delaney Property. This species has a high potential to nest in mature trees within the Delaney Property. The nearest documented nesting occurrence for this species is approximately nine miles to the south of the Project Area (CNDDB 2007).

Protocol-level surveys conducted in March and April 2008 found no evidence of Swainson' Hawk nesting in the Delaney Property or Wildlife Survey Area.

Bald Eagle (*Haliaeetus leucocephalus*), Federal Delisted Species; State Endangered Species; California Fully Protected Species. This species requires large bodies of water, or free-flowing rivers with abundant fish, and adjacent snags or other perches. Bald Eagles nest in large trees with an open branch network. The Tuolumne River immediately north of the Project Area provides suitable foraging habitat for this species. Suitable nesting habitat is present in mature trees within the Project Area boundary. The nearest known nesting site is documented approximately three miles west of the Project Area and was confirmed extant in April 2008 (CNDDB 2007).

Protocol-level nest surveys conducted in March and April 2008 found no evidence of Bald Eagle nesting in the Project Area.

California Tiger Salamander (*Ambystoma californiense*), Federal Threatened Species; CDFG Species of Special Concern; Vernal Pool Recovery Plan. This species occurs primarily in California annual grassland, non-native grassland, grazelands and vernal pool habitats. The California tiger salamander (CTS) typically inhabits ground squirrel burrows and ground cracks during the dry season; adults emerge during winter rains and migrate to breeding pools. A minimum of 10 weeks of inundation is necessary for this salamander to complete metamorphosis. Perennial ponds or waters containing known predatory species are generally not considered suitable breeding habitat for CTS. Suitable upland and estivation habitat for CTS typically includes grazed annual grassland containing small mammal burrows or other underground habitat within 2,200 feet of potential aquatic breeding habitat where there are no obvious barriers to dispersal.

This species has been documented to occur on surrounding properties approximately one mile to the north and east (CNDDB 2008). Additionally, Critical Habitat has been designated by USFWS less than 0.75 miles east of the Project Area (USFWS 2004). Potential barriers to CTS dispersal into the Project Area from the north and east may include the Tuolumne River and the TID Main Canal, respectively.

A CTS habitat assessment was performed March 31, 2008. Marginal breeding habitat is present south of the Project Area in freshwater marsh habitats. Non-native bullfrogs (*Rana catesbeiana*) have been observed in freshwater marsh habitats found within the 2,200 foot buffer area to the Project Area. According to Shaffer et al. (1993), the presence of CTS is inversely correlated with that of bullfrogs. Non-native mosquito fish are also present in all of the test pits and marsh habitats observed. Therefore, aquatic habitat found within the 2,200 foot buffer to the Project Area is likely of marginal quality due to the presence of predators. In addition, a history of ground disturbance and lack of refugia in cobble like substrate, preclude presence of CTS in upland habitats within the Project Area and the northern portion of the Delaney property. Suitable upland habitat is present in the southern portion of the property.

Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), Federal Threatened. The valley elderberry longhorn beetle (VELB) is closely associated with blue elderberry (*Sambucus mexicana*), which is an obligate host plant for the beetle larvae. Adult beetles exhibit a preference for stressed or unhealthy elderberry bushes, and bushes with large trunks and branches (5-20 centimeters in diameter). Three clusters of blue elderberry bushes were observed in the northeastern portion of the Study Area. This species has a high potential of occurring in the Study Area where blue elderberry is present because the necessary habitat required to support VELB reproduction is available. However, no occurrences of the species have been documented within the nine USGS quadrangles surrounding the Study Area (CNDDB 2007).

On October 2, 2006, the USFWS announced their recommendation to remove VELB from the endangered species list after the completion of a five-year review of the species. Based on a continuously increasing number of sightings throughout the Central Valley and the reduction of the primary threats to the species, the USFWS Sacramento Fish and Wildlife Office (2006a) recommended VELB be delisted in their summary and evaluation of the species.

Three clusters of blue elderberry bushes were observed during the September 2007 site visit. The project has been designed to maintain a 100 foot buffer around these elderberry bush clusters. No

impacts will occur to these elderberry populations and further surveys and mitigation measures are unnecessary.

4.0 IMPACTS AND MITIGATION MEASURES

4.1 Biological Communities

4.1.1 Aquatic features

Potential Impact

No potentially jurisdictional waters occur within the Project Area. Therefore, no potentially jurisdictional waters will be impacted by project activities.

Proposed Mitigation Measure

To avoid indirect impacts to aquatic features adjacent to the Project Area (within the Delaney Property), a 20 foot buffer around adjacent aquatic features will be implemented. This buffer will be demarcated by a silt fence, which will prevent indirect impacts caused by erosion.

4.2 Special Status Species

4.2.1 Plants

Potential Impact

Suitable habitat for special status plant species does not occur within the Project Area; therefore, special status plant species will not be impacted by project activities. Mitigation measures or additional surveys are unnecessary.

4.2.2 Wildlife

Potential Impact

Possible significant impact on raptors due to potential disturbance of active raptor nests by site preparation and mining activities within the Project Area.

Proposed Mitigation Measure

A pre-construction survey to verify the presence or absence of active raptor nests shall be conducted within 14 days to the start of project activities, with a prohibition on project activities that would result in removal or abandonment of an active raptor nest during the breeding season. A qualified biologist shall determine whether disturbance of any active nests would occur due to the onset of project activities. If active nests are found, a suitable buffer shall be established around such nests until the young have fledged. If project activities begin outside the breeding season, no surveys are necessary.

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APPENDIX A

LIST OF OBSERVED PLANT AND ANIMAL SPECIES

Appendix A. Observed plant and wildlife species in Project Area and Immediate Study Area on September 6, 2007. (n=native, x=non-native, i=invasive, native to CA but locally invasive in Project Area habitats=li)

Plant Species		
Scientific Name	Common Name	Status
Aesculus californica	buckeye	n
Ailanthus altissima	tree of heaven	i
Avena barbata	slender wild oat	x
Barbarea orthoceras	wintercress	n
Brassica rapa	field mustard	x
Bromus diandrus	ripgut brome	x
Bromus hordeaceus	soft chess	x
Carduus pycnocephalus	Italian thistle	x
Cedrus sp.	Cedar	-
Centaurea solstitialis	yellow star thistle	i
Cynodon dactylon	bermuda grass	x
Cyperus eragrostis	tall flatsedge	n
Datura wrightii	jimsonweed	n
Echinochloa crus-galli	barnyard grass	x
Eleocharis macrostachya	spike rush	n
Eremocarpus setigerus	turkey mullein	n
Ficus carica	fig	x
Helianthus sp.	sunflower	-
Hordeum murinum	foxtail barley	x
Lupin sp.	lupine	-
Marrubium vulgare	white horehound	x
Mentha sp.	mint	-
Paspalum dilatatum	dallis grass	x
Polygonum punctatum	water smartweed	n
Populus fremontii	cottonwood	n
Quercus douglasii	blue oak	n
Quercus lobata	valley oak	n

Rubus californica	California blackberry	n
Rumex acetosella	sheep sorrel	x
Rumex crispus	curly dock	x
Salix lasiolepis	arroyo willow	n
Salix hindsiana	sandbar willow	n
Sambucus mexicana	blue elderberry	n
Toxicodendron diversilobum	poison oak	n
Trichostema lanceolatum	vinegarweed	n
Typha latifolia	tule	n
Xanthium strumarium	rough cocklebur	x
Wildlife		
Pacifastacus leniusculus	signal crayfish	li
Gambusia affinis	mosquitofish	i
Pseudacris regilla	Pacific chorus frog	n
Rana catesbeiana	American Bullfrog	i
Ardea herodias	Western Fence Lizard	n
Ardea herodias	Great Blue Heron	n
Ardea alba	Great Egret	n
Anas platyrhynchos	Mallard	n
Cathartes aura	Turkey Vulture	n
Elanus leucurus	White-tailed Kite	n
Accipiter cooperii	Cooper’s Hawk	n
Buteo lineatus	Red-shouldered Hawk	n
Buteo jamaicensis	Red-tailed Hawk	n
Falco sparverius	American Kestrel	n
Zenaida macroura	Mourning Dove	n
Tyto alba	Barn Owl	n
Calypte anna	Anna’s Hummingbird	n
Megaceryle alcyon	Belted Kingfisher	n
Melanerpes formicivorus	Acorn Woodpecker	n
Picoides nuttallii	Nuttal’s Woodpecker	n

Empidonax sp.	Empidonax Flycatcher.	n
Sayornis nigricans	Black Phoebe	n
Petrochelidon pyrrhonota	Cliff Swallow	n
Aphelocoma californica	Western Scrub Jay	n
Pica nuttalli	Yellow-billed Magpie	n
Thryomanes bewickii	Bewick's Wren	n
Sturnus vulgaris	European Starling	i
Carpodacus mexicanus	House Finch	n
Carduelis tristis	American Goldfinch	n
Odocoileus hemionus	Black-tailed Deer	n
Lontra canadensis	River Otter	n

APPENDIX B

POTENTIAL FOR SPECIAL STATUS PLANT AND WILDLIFE SPECIES TO OCCUR

Appendix B. Potential for Special Status Plant and Wildlife Species to Occur in the Project Area. List compiled from the U.S. Fish and Wildlife Service (USFWS) Species Lists for Stanislaus County, California Department of Fish and Game (CDFG) Natural Diversity Database (February 2008) and California Native Plant Society (CNPS) Electronic Inventory search of the La Grange, Keystone, Chinese Camp, Moccasin, Cooperstown, Penon Blanco Peak, Turlock Lake, Snelling and Merced Falls USGS 7.5' quadrangles and a review of other CDFG lists and publications (Jennings and Hayes 1994, Zeiner et al. 1990).

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE
Mammals			
Western Red Bat *Lasiurus blossevillii*	WBWG	Wide ranging distribution, from Shasta County to the Mexican Border, west of the Sierra Nevada Range. Roosting sites include edge habitats adjacent to streams, fields or urban areas between 2 and 40 ft above ground.	**Unlikely.** Suitable roost habitat is not present in the Project Area. Tall trees and riparian vegetation adjacent to the Project Area provide suitable foraging and roosting habitat.
Hoary Bat *Lasiurus cinereus*	WBWG	A widely distributed bat species, found from southern Canada through most of continental United States and Hawaii. Usually found among dense foliage, in evergreen forests and wooded areas. Occurs in small numbers. Roosts in dense foliage of medium to large trees near water. Forages for moths at forest edges.	**Unlikely.** Suitable roost habitat is not present in the Project Area. Tall trees and riparian vegetation adjacent to the Project Area provide suitable foraging and roosting habitat.
Pallid Bat *Antrozous pallidus*	SSC, WBWG	Found in deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	**Unlikely.** Suitable roost habitat is not present in the Project Area. Rocky outcroppings and structures south of the Project Area may provide roosting habitat.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE
Western Mastiff Bat *Eumops perotis californicus*	SSC, WBWG	Found in a wide variety of habitats. Distribution appears to be tied to large rock structures which provide suitable roosting sites, including cliff crevices and cracks in boulders.	**Unlikely.** Suitable roost habitat is not present in the Project Area. Rocky outcroppings and structures south of the Project Area may provide roosting habitat.
Giant Kangaroo Rat *Dipodomys ingens*	FE, SE, RP	Annual grasslands on the western side of the San Joaquin Valley, marginal habitat in alkali scrub. Need level terrain and sandy loam soils for burrowing.	**Unlikely.** No occurrences in Stanislaus County. Typical terrain and habitat required by the species is not present in Project Area. Not documented within 10 miles of Project Area (CNDDB 2007).
Fresno Kangaroo Rat *Dipodomys nitratoides exilis*	FE, SE, RP	Alkali sink-open grassland habitats in western Fresno County. Bare alkaline clay-based soils subject to seasonal inundation, with more friable soil mounds around shrubs and grasses.	**Unlikely.** No occurrences in Stanislaus County. Typical terrain and habitat required by the species is not present in Project Area .
Merced Kangaroo Rat *Dipodomys heermanni dixoni*	SLC	Occurs in grassland and savanna communities in eastern Merced and Stanislaus Counties. Requires fine, deep, well-drained soils for burrowing. Granivorous, but also eats forbs and green grasses.	**Unlikely.** Grassland habitat in the Project Area is highly disturbed; substrate does not support burrowing. CNDDB occurrence approximately 3 miles northeast of the Project Area from the early 1900s, population presumed extant (CNDDB 2007). This species has no protective status in Stanislaus County and is included herein for completeness only.
San Joaquin Pocket Mouse *Perognathus inornatus*	SLC	Occurs in dry, open grasslands, blue oak savannah, or scrub areas on fine-textured soils. Large tracts of unfragmented habitat in the eastern Central Valley are considered valuable for this species. Forages on seeds, green vegetation and insects.	**Unlikely.** No grassland habitat is present; the Project Area is highly disturbed; substrate does not support burrowing. This species has no protective status in Stanislaus County and is included herein for completeness only.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE
San Joaquin Antelope Squirrel *Ammospermophilus nelsoni*	FC, ST	Depends on sparse grasslands of the San Joaquin Valley with moderate shrub cover.	**Unlikely.** Project Area is not within known range of species. Typical terrain and habitat required by the species is not present in Project Area . Not documented within 10 miles of Project Area (CNDDB 2007).
Riparian Brush Rabbit *Sylvilagus bachmani riparius*	FE, SE	Found in riparian forests along the San Joaquin River and tributaries from Stanislaus County to the Sacramento-San Joaquin Delta. Only known extant population occurs at Caswell Memorial State Park.	**Not Present.** Project Area is not within known range of species. Not documented within 10 miles of Project Area (CNDDB 2007).
San Joaquin Valley Riparian Woodrat *Neotoma fuscipes riparia*	FE, SSC	Occurs in riparian communities along lower portions of San Joaquin and Stanislaus Rivers in northern San Joaquin valley.	**Unlikely.** Suitable habitat exists in riparian habitat within the Project Area boundary, however, the only known population is at Caswell Memorial State Park with a possible second population near Vernalis. No woodrat nests were observed during the site visit. Not documented within 10 miles of Project Area (CNDDB 2007).
San Joaquin Kit Fox *Vulpes macrotis mutica*	FE, ST	Found in open, level areas with loose-textured soils supporting scattered, shrubby vegetation with little human disturbance.	**Unlikely to Moderate Potential.** No suitable den habitat is present; substrate does not support burrowing mammals and therefore does not provide abundant prey sources. May rarely migrate through the Project Area . There are two documented occurrences in eastern Stanislaus County. The nearest documented occurrence is from 1973, approximately 2.5 miles to the northeast of the Project Area boundary, south of the Tuolumne River (CNDDB 2007).

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE
American Badger *Taxidea taxus*	SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Need sufficient food, friable soils and open, uncultivated ground to dig burrows. Preys on burrowing rodents.	**Unlikely.** Substrate in the Project Area does not support burrowing mammals. The nearest documented occurrence is approximately 2 miles to the east of the Project Area boundary (CNDDB 2007). .
Birds			
White-faced Ibis *Plegadis chihi*	SLC	Rookery sites protected. Nests in habitat consisting of dense tule thickets in shallow, fresh-water marshes. Prefers to feed in fresh emergent wetland, shallow lacustrine waters, and muddy ground of wet meadows and irrigated or flooded pastures and croplands.	**Not Present.** The Project Area does not contain suitable habitat to support an active rookery. Typical foraging habitat is not present. Not documented within 10 miles of Project Area (CNDDB 2007).
Cooper's Hawk *Accipiter cooperi*	SLC	Frequents open, interrupted or marginal woodlands. Often observed using woodland edges and snags for perching. Nests mainly in secondary growth conifer stands or in deciduous riparian areas, usually near streams.	**Unlikely.** No suitable nest habitat is present in the Project Area . May nest in dense riparian trees adjacent to the Project Area .
Golden Eagle *Aquila chrysaetos*	CFP, BCC	Found in rolling foothill and mountainous areas, sage-juniper flats, dessert. Cliff-walled canyons provide nesting habitat in most parts of range. Also nests in large trees in open areas.	**Unlikely.** Suitable nesting habitat is not present in the Project Area; no potential for this species to breed in the Project Area . May occasionally forage over Project Area . Not documented within 10 miles of Project Area (CNDDB 2007).
Ferruginous Hawk *Buteo regalis*	BCC	Winter resident of open grasslands, sagebrush flats, desert scrub, low foothills surrounding valleys, and fringes of pinyon-juniper habitats.	**Unlikely.** Suitable nesting habitat is not present in the Project Area; no potential for this species to breed in the Project Area . May occasionally utilize fields as foraging habitat.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE
Swainson's Hawk *Buteo swainsoni*	ST, BCC	Found in open desert, grassland, or cropland containing scattered large trees or small groves. Roosts in large trees.	**Unlikely to Moderate Potential.** Suitable foraging habitat and prey base are not present in the Project Area . Mature trees may provide suitable nesting habitat for this species adjacent to the Project Area . Nest surveys were performed in March and April 2008; no nests were detected.
Northern Harrier *Circus cyaneus*	SSC	Breeds in coastal salt and fresh-water marsh habitats. Nests in shrubby vegetation, usually at marsh edge; nest are built of a large mound of sticks in wet areas. Generally forages in grasslands.	**Not Present.** Suitable nesting habitat is not present in the Project Area; no potential for this species to breed in the Project Area.
White-tailed Kite *Elanus leucurus*	CFP	Year-long resident of coastal and valley lowlands; rarely found away from agricultural areas. Preys on small diurnal mammals and occasional birds, insects, reptiles, and amphibians.	**Unlikely to Moderate Potential.** Suitable foraging habitat and prey base is not present within the Project Area boundary. Trees or shrubs may provide suitable nesting habitat for this species; birds may occasionally roost or nest in Project Area. Raptor surveys performed in April 2008 did not detect this species.
Bald Eagle *Haliaeetus leucocephalus*	FD, SE, CFP	Requires large bodies of water, or free-flowing rivers with abundant fish adjacent snags or other perches. Nests in large, old-growth, or dominant live tree with open branchwork.	**Unlikely to Moderate Potential.** Species observed in La Grange area during site visit. Suitable foraging habitat and prey base are not present in the Project Area. Mature trees may provide suitable nesting habitat for this species adjacent to the Project Area. Surveys were performed in March and April 2008; no nests were detected.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE
Osprey *Pandion Haliaetus*	SLC	Uses large snags and tree tops near large bodies of water. Frequents ocean shores, bays, fresh-water lakes, and larger streams. Prefers large trees, snags and dead-topped trees for cover and nesting. May travel 5-6 miles from nest to fishing areas.	**Unlikely.** Suitable foraging habitat and prey base are not present in the Project Area . An Osprey nest was detected adjacent to the Project Area along the Tuolumne River in April 2008.
Merlin *Falco columbarius*	SLC	Breeds in the northern U.S. and Canada; does not breed in California. Clumps of trees or windbreaks are required for roosting in open country. Habitats variable, including seacoast, tidal estuaries, open woodlands, savannahs, edges of grasslands, deserts, farms and ranches.	**Unlikely.** Suitable nesting habitat is not present in the Project Area ; no potential for this species to breed in the Project Area . . Not documented within 10 miles of Project Area (CNDDB 2007).
American Peregrine Falcon *Falco peregrinus anatum*	FD, SE, BCC, CFP	Prefers dry, open terrain, either level or hilly. Forages far afield, even to marshlands and ocean shores. Nests near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape on a depression or ledge in an open site.	**Unlikely.** Suitable nesting habitat is not present in the Project Area; no potential for this species to breed in the Project Area . Not documented within 10 miles of Project Area (CNDDB 2007).
Prairie Falcon *Falco mexicanus*	BCC	Inhabits dry, open terrain, either level or hilly. Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores. Nesting sites protected.	**Unlikely.** Suitable nesting habitat is not present in the Project Area; no potential for this species to breed in the Project Area. Not documented within 10 miles of Project Area (CNDDB 2007).
Mountain Plover *Charadrius montanus*	SSC, BCC	Winters in open plains with low or scattered herbaceous scrub. Avoids high and dense cover. Uses short grasslands, plowed fields with little vegetation, and open sagebrush areas in the Central Valley below 1000 m elevation. Prefer areas with burrowing rodents.	**Not Present.** Suitable nesting habitat is not present in the Project Area; no potential for this species to breed in the Project Area.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE
Long-billed Curlew *Numenius americanus*	BCC	Winters in large coastal estuaries, open grasslands, upland herbaceous areas, and Central Valley croplands. Breeds in northeastern California in wet meadow habitat.	**Unlikely.** Suitable nesting habitat is not present in the Project Area ; no potential for this species to breed in the Project Area. Not documented within 10 miles of Project Area (CNDDB 2007).
Burrowing Owl *Athene cunicularia*	SSC, BCC	Frequents open grasslands and shrublands with perches and burrows. Preys upon insects, small mammals, reptiles, birds, and carrion. Nests and roosts in old burrows of small mammals.	**Not Present.** Suitable burrow habitat is not present and no occurrences have been documented in a 9 quad search (CNDDB 2007).
Great Gray Owl *Strix nebulosa*	SE	Resident of mixed conifer or red fir forest habitat, in or on edge of meadows. Require large diameter snags in a forest with high canopy closure, which provide a cool sub-canopy microclimate.	**Not Present.** This species is more commonly associated with higher elevation coniferous forests. No suitable nesting habitat is available in the Project Area . Not documented within 10 miles of Project Area (CNDDB 2007).
Yellow-billed Cuckoo *Coccyzus americanus occidentalis*	FC, SE, BCC	Cuckoos are a riparian obligate species in California. The occupy large tracts of dense riparian forest vegetation preferring native cottonwood-willow communities. Willows are preferred for nesting. Cuckoos are largely irruptive, occurring where food is currently prevalent.	**Unlikely.** Only county occurrence is at the mouth of the Stanislaus River. Riparian habitat in areas adjacent to the Project Area is fragmented and may not provide suitable nesting habitat for this species. Not documented within 10 miles of Project Area (CNDDB 2007).
Willow Flycatcher *Empidonax traillii*	SE	Inhabits extensive thickets of low, dense willows on edge of wet meadows, ponds, or backwaters; 2000-8000 ft elevation	**Unlikely.** The Project Area is outside the known altitudinal preference of this species. Riparian habitat in areas adjacent to the Project Area is fragmented and may not provide suitable nesting habitat for this species. Not documented within 10 miles of Project Area (CNDDB 2007).

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE
Bank Swallow *Riparia riparia*	ST	Requires vertical banks or cliffs with fine-textured or sandy soils to dig nesting hole. Occurs near streams, rivers, lakes, or the Pacific Ocean.	**Unlikely.** Typical cliff habitat is not present in the Project Area. Established nesting sites for this species are well documented; there are no known occurrences of this species in the Project Area vicinity. Not documented within 10 miles of Project Area (CNDDB 2007).
Loggerhead Shrike *Lanius ludovicianus*	SSC	Prefers open habitats with sparse shrubs, trees, posts, and other suitable perches to forage for large insects. Nests are well-concealed above ground in densely-foliaged shrub or tree.	**Unlikely to Moderate Potential.** The Project Area contains suitable open foraging habitat and limited nesting habitat for this species. Not documented within 10 miles of Project Area (CNDDB 2007). No nests were detected in April 2008.
California Horned Lark *Eremophilia alpestris acatia*	SLC	Nests and forages in short-grass prairie, mountain meadow, coastal plain, fallow grain fields, and alkali flats. Also occurs in meadow and seep, marine intertidal and splash zone communities.	**Unlikely.** The Project Area contains suitable open grassland foraging habitat for this species. This species may nest in adjacent grassland habitats.
Yellow-breasted Chat *Icteria virens*	SSC	Inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 ft of ground.	**Unlikely.** Suitable nesting and foraging habitat occurs in riparian habitats adjacent to the Project Area but not within. Nearest occurrence 5 miles to the west from 1925 (CNDDB 2007).
Tricolored Blackbird *Agelaius tricolor*	SSC, BCC	Usually nests over or near freshwater in dense cattails, tules, or thickets of willow, blackberry, wild rose or other tall herbs. Nesting area must be large enough to support about 50 pairs.	**Unlikely.** Suitable nesting and foraging habitat occurs in riparian habitats adjacent to the Project Area but not within. Documented to nest in cattail marshes and dredged ponds west of La Grange.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE
Amphibians and Reptiles			
California Tiger Salamander *Ambystoma californiense*	FT, SSC	Occurs primarily in annual grass habitat and in grassy understory of valley-foothill hardwood habitats where small mammal burrow are present. Seasonal ponds and vernal pools are crucial to breeding.	**Unlikely to Moderate Potential.** Suitable breeding habitat was not observed within the Project Area boundary, but may be present in freshwater marsh habitat adjacent to the Project Area to the south. A history of ground disturbance and lack of refugia in cobble like substrate indicates the absence of upland estivation habitat in the Project Area. Documented occurrences approximately 1 mile northeast and southeast of the Project Area (CNDDB 2007). USFWS Critical Habitat has been designated approximately 0.75 miles east of the Project Area .
Foothill Yellow-legged Frog *Rana boylii*	SSC	Found in or near small, rocky streams in a variety of habitats. Feeds on both aquatic and terrestrial invertebrates. Requires emergent vegetation for cover and open canopy areas for basking.	**Not Present.** The Project Area does not contain suitable aquatic habitat for this species. Not documented within 10 miles of Project Area (CNDDB 2007).
California Red-legged Frog *Rana aurora draytonii*	FT, SSC	Associated with quiet perennial to intermittent ponds, stream pools and wetlands. Prefers shorelines with extensive vegetation. Documented to disperse through upland habitats after rains.	**Unlikely.** Project Area does not contain suitable habitat for this species. A history of ground disturbance and lack of refugia in cobble like substrate preclude this species from aestivating in the Project Area. Not documented within 10 miles of Project Area (CNDDB 2007).
Western Spadefoot Toad *Spea hammondii*	SSC	Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. Seasonal wetlands are essential for breeding and egg-laying.	**Unlikely.** Seasonal aquatic features adjacent to the Project Area may provide suitable breeding habitat, but no suitable habitat is present in the Project Area .

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE
Western Pond Turtle *Actinemys (Emys) marmorata*	SSC	Occurs in perennial ponds, lakes, rivers and streams with suitable basking habitat (mud banks, mats of floating vegetation, partially submerged logs) and submerged shelter.	**Unlikely.** Seasonal aquatic features adjacent to the Project Area may provide suitable breeding habitat, but no suitable habitat is present in the Project Area .
Blunt-nosed Leopard Lizard *Gambelia sila*	FE, SE, CFP	Resident of sparsely vegetated alkali and desert scrub habitats, in areas of low topographic relief. Seeks cover in mammal burrows, under shrubs or structures such as fence posts; they do not excavate their own burrows.	**Not Present.** Project Area lacks desert scrub habitats preferred by this species. Not documented within 10 miles of Project Area (CNDDB 2007).
California (Coast) Horned Lizard *Phrynosoma coronatum frontale*	SSC	Inhabits sandy areas, washes, flood plains and wind-blown deposits in a wide variety of habitats. Species heavily impacted by urbanization and displacement of native ants by invasive Argentine ants.	**Unlikely** Suitable foraging and breeding habitat for this species is not available in the Project Area due to aggregate base rock and the lack of sandy areas. Not documented within 10 miles of Project Area (CNDDB 2007).
Silvery Legless Lizard *Anniella pulchra pulchra*	SSC	Found primarily in areas with sandy or loose organic soils, sandy washes or where there is plenty of leaf litter. Fossorial. Species heavily impacted by human activities.	**Unlikely** Suitable foraging and breeding habitat for this species is not available in the Project Area due to aggregate base rock and the lack of moist, friable or sandy soils. Not documented within 10 miles of Project Area (CNDDB 2007).
San Joaquin Whipsnake *Masticophis flagellum ruddocki*	SSC	Found in valley grassland and saltbush scrub in the San Joaquin Valley in open, dry habitats with little or no tree cover. Requires mammal burrows for refuge and breeding sites.	**Unlikely.** Typical grassland habitat is highly fragmented or historically disturbed within the Project Area boundary. Not documented within 10 miles of Project Area (CNDDB 2007).
Giant Garter Snake *Thamnophis gigas*	FT, ST	Occurs in dense, emergent vegetation near or in pools, streams, canals and sloughs. Highly aquatic. Requires open areas for basking and upland habitat with subterranian refuge for hibernating.	**Not Present.** No suitable habitat is present in the Project Area. The Tuolumne River north of the Project Area may provide marginally suitable habitat in areas. Not documented within 10 miles of Project Area (CNDDB 2007).

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE
Fishes			
Pacific Lamprey *Lampetra ayresi*	none	Anadromous fish found in the Sacramento-San Joaquin River delta and in river systems north of Monterey County. Generally nests in shallow water with a sandy substrate..	**Not Present.** No suitable aquatic habitat in the Project Area .
Kern Brook Lamprey *Lampetra hubbsi*	SSC	Found in silty backwaters of rivers emerging from foothill regions. Occurs in lower reaches of Friant-Kern Canal, merced River, Kaweah River, Kings River, and San Joaquin River.	**Not Present.** No suitable aquatic habitat in the Project Area .
Green Sturgeon *Acipenser medirostris*	SSC, RP, FT	Spawn in the Sacramento River and the Klamath River. Spawn at temperatures between 8-14 degrees C. Preferred spawning substrate is large cobble, but can range from clean sand to bedrock.	**Not Present.** No suitable aquatic habitat in the Project Area .
Delta Smelt *Hypomesus transpacificus*	FT, ST, RP	Lives in the Sacramento-San Joaquin estuary in areas where salt and freshwater systems meet. Occurs seasonally in Suisun Bay, Carquinez Strait and San Pablo Bay. Seldom found at salinities > 10 ppt; most often at salinities < 2 ppt.	**Not Present.** No suitable aquatic habitat in the Project Area .
Sacramento Splittail *Pogonichthys macrolepidotus*	SSC, RP	Endemic to the lakes and rivers of the Central Valley, but now confined to the Sacramento Delta, Suisun Bay and associated marshes. Occurs in slow-moving river sections and dead end sloughs. Requires flooded vegetation for spawning and foraging for young. Splittail are primarily freshwater fish, but are tolerant of moderate salinity and can live in water where salinity levels reach of 10-18 parts per thousand.	**Not Present.** No suitable aquatic habitat in the Project Area .

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE
San Joaquin Roach *Lavinia symmetricus ssp. 1*	SSC	Tributaries to the San Joaquin River from the Cosumnes River south.	**Not Present.** No suitable aquatic habitat in the Project Area .
Red Hills Roach *Lavinia symmetricus ssp. 3*	SSC	Small streams near Sonora. Found in areas with serpentine soil.	**Not Present.** No suitable aquatic habitat in the Project Area .
Hardhead *Mylopharodon conocephalus*	SSC	Low to mid-elevation streams in the Sacramento-San Joaquin drainage. Clear, deep pools w/ sand-gravel-boulder bottoms & slow water velocity. Not found where exotic centrarchids predominate.	**Not Present.** No suitable aquatic habitat in the Project Area .
Paiute Cutthroat Trout *Oncorhynchus clarki seleniris*	FT, RP	Cool, well-oxygenated waters. Cannot tolerate presence of other salmonids, requires clean gravel for spawning.	**Not Present.** No suitable aquatic habitat in the Project Area .
Steelhead - Central Valley ESU *Oncorhynchus mykiss*	FT, ST	Anadromous fish occurring in cold-water streams and lakes throughout the Central Valley. Requires a minimum water depth of 18 cm. Spawns in cool, clear, well-oxygenated streams with gravel substrate.	**Not Present.** No suitable aquatic habitat in the Project Area .
Winter-run Chinook Salmon	FE	For successful breeding, salmon require freshwater habitats that include: cool, clean water, riparian vegetation to provide shade, clean gravel for spawning and egg-rearing, large woody debris to provide resting and hiding places, and varied channel forms.	**Not Present.** No suitable aquatic habitat in the Project Area .

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE
Central Valley Fall/Late Fall-run Chinook Salmon *Oncorhynchus tshawytscha*	SSC	Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for 1 or more years before migrating downstream to the ocean.	**Not Present.** No suitable aquatic habitat in the Project Area .
Invertebrates			
longhorn fairy shrimp	FE	Longhorn fairy shrimp inhabit clear to rather turbid vernal pools. Lack of surveys throughout much of the San Joaquin valley and in areas between the Carrizo and the Livermore Vernal Pool Regions suggests there may be additional, undiscovered populations of this species.	**Unlikely.** Disturbed soils and dredged areas containing cobble substrate are unlikely to provide suitable conditions to support vernal pool crustaceans. Not documented within 10 miles of Project Area (CNDDB 2007).
conservancy fairy shrimp *Branchinecta conservatio*	FE	Occurs in cool water vernal pools and seasonal depressions.	**Unlikely.** Disturbed soils and dredged areas containing cobble substrate are unlikely to provide suitable conditions to support vernal pool crustaceans. Not documented within 10 miles of Project Area (CNDDB 2007).
vernal pool fairy shrimp *Branchinecta lynchi*	FT	Occurs in vernal pools and seasonal depressions. Prefers clear water areas.	**Unlikely.** Disturbed soils and dredged areas containing cobble substrate are unlikely to provide suitable conditions to support vernal pool crustaceans. No clay or hardpan soils capable of supporting vernal pools have been documented in the Project Area (NCRS 2007). USFWS Critical Habitat has been designated on grasslands habitats in the south of the Project Area.
California linderiella *Linderiella occidentalis*	none	Seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions. Water in the pools has very low alkalinity and conductivity.	**Unlikely.** Disturbed soils and dredged areas containing cobble substrate are unlikely to provide suitable conditions to support vernal pool crustaceans. Not documented within 10 miles of Project Area (CNDDB 2007).

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE
vernal pool tadpole shrimp *Lepidurus packardi*	FE	Inhabits vernal pools containing clear to highly turbid water	**Unlikely.** Disturbed soils and dredged areas containing cobble substrate are unlikely to provide suitable conditions to support vernal pool crustaceans. No clay or hardpan soils capable of supporting vernal pools have been documented in the Project Area (NCRS 2007).
valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT	Strongly associated with blue elderberry shrubs. Lays eggs in elderberries 2-8 inches in diameter. Prefers large shrubs that are not isolated.	**Moderate Potential.** Elderberry shrubs immediately adjacent to the Project Area are considered essential habitat for this species. Multiple trunks greater than 2 inches in diameter were observed north of the Project Area boundary. Nearest documented occurrence is approximately 15.75 miles west of Project Area . In 2006 the species was proposed for delisting by USFWS, but is currently listed as threatened.
molestan blister beetle *Lytta molesta*	RP	Inhabits the central valley of California, from Contra Costa to Kern and Tulare counties. Found in vernal pool vegetation.	**Unlikely.** Disturbed soils and dredged areas containing cobble substrate are unlikely to provide suitable conditions to support vernal pool crustaceans. Not documented within 10 miles of Project Area (CNDDB 2007).
Plants			
Allium tuolumnense Rawhide Hill onion	List 1B	Cismontane woodland. Elevation ranges from 300-600m. Blooms from March to May.	**Unlikely.** Suitable habitat is not present within the Project Area. No occurrences are documented in the area.
Brodiaea pallida Chinese Camp brodiaea	FT, SE, List 1B	Cismontane woodland and Valley and foothill grassland (VFGrs)/vernal streambeds, often serpentinite. Occurs at an elevation of 385 meters. Blooms from May to June.	**Unlikely.** Suitable habitat is not present within the Project Area. Closest documented occurrence is over 10 miles away in Chinese Camp.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE
Calycadenia hooveri Hoover's calycadenia	List 1B	Cismontane woodland and valley grassland, often rocky. Elevation ranges from 65-300m. Blooms from July to September.	**Unlikely.** No potentially suitable habitat is present on-site due to the disturbed state of the site and substrate. Documented occurrence within 5 miles of Project Area .
Castilleja campestris ssp. succulenta succulent owl's clover	FT, SE, List 1B	Vernal pools, often acidic. Elevation ranges from 50-750m. Blooms from April to May.	**Unlikely.** Documented occurrence within five miles, but potential suitable soils and habitat does not occur within the Project Area.
Chamaesyce hooveri Hoover's spurge	List 1B	Vernal pools. Elevation ranges from 25-250m. Blooms from July to September.	**Unlikely.** Documented occurrence within five miles, but potential suitable soils and habitat does not occur within the Project Area. Plant not observed during September 2007 site visit.
Chlorogalum grandiflorum Red Hills soaproot	List 1B	Chaparral, cismontane woodland, and lower montane coniferous forest/serpentinite. Elevation ranges from 245-1170m. Blooms from May to June.	**Unlikely.** Suitable habitat is not present within the Project Area. No occurrences are documented in the area.
Clarkia rostrata beaked clarkia	List 1B	Cismontane woodland, and valley and foothill grassland. Elevation ranges from 60-500m. Blooms from April to May.	**Unlikely.** Suitable habitat is not present within the Project Area. Documented occurrence within 5 miles of Project Area .
Cryptantha hooveri Hoover's cryptantha	FT, List 1A	Inland dunes and valley and foothill grasslands (sandy). Elevation ranges from 9-150m. Blooms from April to May.	**Unlikely.** Suitable habitat is not present within the Project Area. Documented occurrence within 5 miles of Project Area .
Cryptantha mariposae Mariposa cryptantha	List 1B	Chaparral. Elevation ranges from 200-650m. Blooms from April to June.	**Unlikely.** Documented occurrence within five miles, but potential suitable habitat does not occur within the Project Area.
Downingia pusilla dwarf downingia	List 2	Mesic Valley and Foothill grassland and vernal pools. Elevation ranges from 1-445m. Blooms from March to May.	**Unlikely.** Suitable habitat is not present within the Project Area. Documented occurrence within 5 miles of Project Area .

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE
Eryngium pinnatisectum Tuolumne button-celery	List 1B	Cismontane woodland, lower montane coniferous forest, and vernal pools (mesic). Elevation ranges from 70-915m. Blooms form June to August.	**Unlikely.** Suitable habitat is not present within the Project Area. No occurrences are documented in the area.
Eryngium racemosum Delta button-celery	SE, List 1B	Riparian scrub, in vernally mesic clay depressions. Elevation ranges from 3-30m. Blooms from June to September.	**Unlikely.** Suitable habitat is not present within the Project Area. Documented occurrence within 5 miles on the eastern shore of Turlock Lake.
Eryngium spinosepalum spiny-sepaled button-celery	List 1B	Valley and foothill grassland and vernal pools. Elevation ranges form 80-255m. Blooms from April to May.	**Unlikely.** Suitable habitat is not present within the Project Area. Documented occurrence within 5 miles of Project Area .
Juncus nodosus knotted rush	List 2	Mesic meadows and seeps, and marshes and swamps, mostly along lake margins. Elevation ranges form 30-1980. Blooms from July to September.	**Unlikely.** Suitable habitat is not present within the Project Area. Documented occurrence within 5 miles of Project Area .
Lomatium congdonii Congdon's lomatium	List 1B	Chaparral and cismontane woodland, often on serpentinite soils. Elevation ranges from 300-2100m. Blooms from March to June.	**Unlikely.** Suitable habitat is not present within the Project Area. No occurrences are documented in the area.
Monardella leucocephala Merced monardella	List 1A	Valley and foothill grassland, often in sandy and mesic areas. Elevation ranges from 35-100m. Blooms from May to August.	**Unlikely.** No potential suitable habitat is present on-site as a result of disturbed conditions and substrate. Although an occurrence is documented within 5 miles of Project Area, the last positive observation occurred in 1896 .
Neostpfia colusana Colusa grass	FT, SE, List 1B	Vernal pools. Elevation ranges from 5-200m. Blooms from May to August.	**Unlikely.** Suitable habitat is not present within the Project Area..
Orcuttia inaequalis San Joaquin Valley Orcutt grass	FT, SE, List 1B	Vernal pools. Elevation ranges from 10-755m. Blooms from April to September.	**Unlikely.** Documented occurrence within five miles, but suitable soils and habitat does not occur within the Project Area. Plant not observed during September 2007 site visit.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE
Orcuttia pilosa hairy Orcutt grass	FE, SE, List 1B	Vernal pools. Elevation ranges from 55-200m. Blooms from May to September.	**Unlikely.** Documented occurrence within five miles, but potential suitable soils and habitat does not occur within the Project Area.
Packera clevelandii var. heterophylla Red Hills ragwort	List 1B	Cismontane woodland, often in serpentinite seeps. Elevation ranges form 260-385m. Blooms from June to July.	**Unlikely.** Suitable habitat is not present within the Project Area. No occurrences are documented in the area.
Packera layneae Layne's ragwort	FT, SR, List 1B	Chaparral and cismontane woodland, often on serpentinite or gabbroic, rocky soil. Elevation ranges from 200-1000m. Blooms from April to August.	**Unlikely.** Suitable habitat is not present within the Project Area. Closest documented occurrence is over 10 miles away near Chinese Camp and Don Pedro Reservior.
Pseudobahia bahiifolia Hartweg's golden sunburst	FE, SE, List 1B	Cismontane woodland and valley and foothill grassland, often on acidic, clay soil. Elevation ranges from 15-150m. Blooms from March to April.	**Unlikely.** Potential suitable habitat is not present on-site. Soils are composed of sandy material. Closest documented occurrence within 5 miles of Project Area near Cooperstown road.
Tuctoria greenei Greene's tuctoria	FE, SR, List 1B	Vernal pools. Elevation ranges from 30-1070m. Blooms from May to July.	**Unlikely.** Documented occurrence within five miles, but potential suitable soils and habitat does not occur within the Project Area.
Verbena californica California vervain	FT, ST, List 1B	Cismontane woodland and mesic valley and foothill grassland, usually within serpentinite seeps or creeks. Elevation ranges from 260 to 400m. Blooms from May to September.	**Unlikely.** Suitable habitat is not present within the Project Area. Closest documented occurrence is over 5 miles away.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE

*** Key to status codes:**

FE	Federal Endangered
FT	Federal Threatened
FC	Federal Candidate
FD	Federal De-listed
FPD	Federal Proposed for De-listing
NMFS	Species under the Jurisdiction of the National Marine Fisheries Service
BCC	USFWS Birds of Conservation Concern
RP	Sensitive species included in a USFWS Recovery Plan or Draft Recovery Plan
SE	State Endangered
ST	State Threatened
SSC	CDFG Species of Special Concern
CFP	CDFG Fully Protected Animal
SSI	CDFG Special Status Invertebrates
WBWG	Western Bat Working Group High Priority species
SLC	Species of Local Concern
List 1A	CNPS List 1A: Plants presumed extinct in California
List 1B	CNPS List 1B: Plants rare, threatened or endangered in California and elsewhere
List 2	CNPS List 2: Plants rare, threatened, or endangered in California, but more common elsewhere

APPENDIX C

REPRESENTATIVE PHOTOGRAPHS

Photo 1: Overlooking Delaney Aggregates north from ridge line. Photo taken Sept. 6, 2007.

Photo 2 : Test pit dug in 2003 in ruderal/disturbed area. Photo taken Sept. 6, 2007.

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Photo 3: Ponded area near grazing strip at Delaney Aggregates. Photo taken Sept. 6, 2007

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Photo 4: Cottonwood area in northeast corner of Study Area. Photo taken Sept. 6, 2007.

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Photo 5: Non-native, grazed grassland. Blue Oak woodland in the background. Photo taken Sept. 6, 2007.

Photo 6: Dredge tailings at Delaney Aggregates. Photo taken Sept. 6, 2007.

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Photo 7: Blue elderberry in foreground and to the left of the biologist. Photo taken Sept. 6, 2007.

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Photo 8: Disturbed dredge tailings and aggregate matter in the central portion of the Project Area. Taken April 9, 2008.

Photo 9: Disturbed dredge tailings and aggregate material in the eastern portion of the Project Area. Taken April 9, 2008.

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Photo 10: Test pit dug in 2003. Taken April 9, 2008.

Photo 11: Proposed ruderal/disturbed area for sorting and washing. Taken April 9, 2008.

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