

APPENDIX H
BIOLOGICAL RESOURCES UPDATE



CEMEX CACHE CREEK MINE

Biological Resources Update

Project
1076 CMX

Zentner Planning and Ecology

120A Linden Street
Oakland, CA 94607

Prepared for:
CEMEX

Date Issued:
February 22, 2018

CEMEX Cache Creek Mine

Biological Resources Update

I. INTRODUCTION

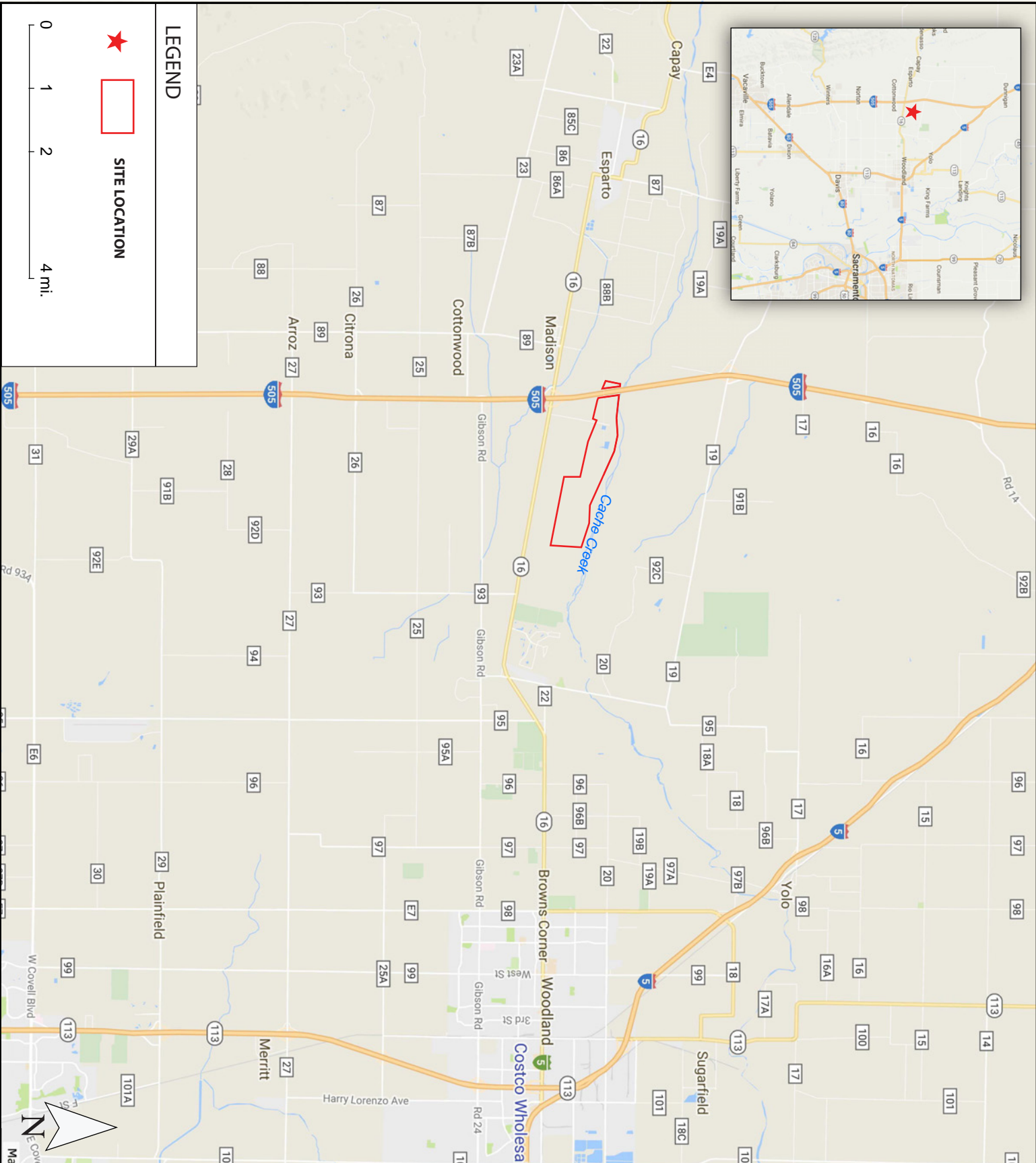
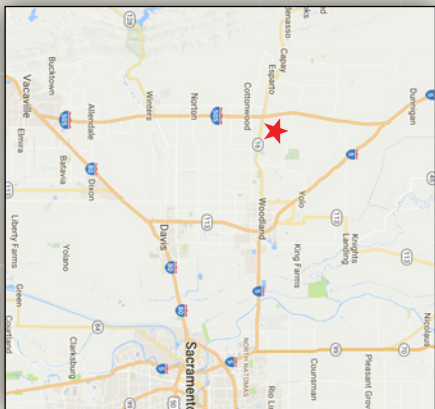
A. Purpose

Zentner Planning and Ecology completed this Biological Resources Update in support of the CEMEX Construction Materials Pacific, LLC. (CEMEX) Cache Creek Mining Permit and Reclamation Plan Amendment Project (Project). Specifically, CEMEX proposes to modify Long-Term Off-Channel Mining Permit No. ZF #95-093, Reclamation Plan No. ZF #95-093 and Development Agreement No. 96-287 (as subsequently amended, "Existing Entitlements") with revised mining and reclamation plans and a 20-year time extension.

The biological resources update was completed to assess the site for the presence of, and the potential habitat for, wildlife and special status species. Where appropriate, species protection measures are recommended. In addition to a recent site survey in conjunction with this review, Zentner Planning and Ecology has been completing monitoring surveys annually for the last 20 years.

B. Location and Site Description

The CEMEX Cache Creek Mine (sometimes referred to as the Madison Quarry or Madison Plant) is an active sand and gravel mining operation on ±586 acres between Highway 16 and Cache Creek (**Figure 1**). Interstate 505 marks the sites western boundary, with the exception of a small amount of site (i.e., Phase 7) lying west of the Interstate. Just east of the existing aggregate processing plant is a former mined pit that has already been reclaimed to agricultural production. Further to the east are active mine pits, some of which are open water as a result of permitted excavation into groundwater. The southern bank of Cache Creek is buffered from the active pits by at least a 200-foot buffer.



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FIGURE 1
SITE
LOCATION

CEMEX
CACHE CREEK MINE
 Madison, California

BY: CIL
 PROJECT: 1076
 BASE MAP:
 GOOGLE MAPS 2017

FILE:
 D:\Graphic Designer\My Documents\PROJECTS\1000-1\100\1076 Cache Creek\Adobe\1076 site location 17-11-09

DATE: 12/13/2017, 03:45 pm

C. Site Conditions

The site consists primarily of mining and agricultural land that is in various stages of mining, farming, and reclamation. Agricultural production on and around the site are mainly row crops. Riparian vegetation forms a relatively narrow band on the southern bank of Cache Creek (north side of the mine), which drops about 35 feet below the agricultural plain where mining is taking place. Remnant sections of riparian habitat lay in depressions within the 200-foot buffer between the Creek and the mining pits. Annual grassland with sections of ruderal vegetation is found around the perimeter of the agricultural and actively mined areas as well as in much of the 200-foot buffer.



Photo 1: View of an active mine pit with ponded water. October 2017

II. REGULATORY FRAMEWORK

A. Federal Endangered Species Act

The Federal Endangered Species Act (FESA) forms the basis for the federal protection of threatened or endangered plants, insects, fish and wildlife. FESA contains four main elements, they are as follows:

- ◆ Section 4 (16 USCA §1533): Species listing, Critical Habitat Designation, and Recovery Planning: outlines the procedure for listing endangered plants and wildlife.
- ◆ Section 7 (§1536): Federal Consultation Requirement: imposes limits on the actions of federal agencies that might impact listed species.
- ◆ Section 9 (§1538): Prohibition on Take: prohibits the “taking” of a listed species by anyone, including private individuals, and State and local agencies.
- ◆ Section 10: Exceptions to the Take Prohibition: non-federal agencies can obtain an incidental take permit through approval of a Habitat Conservation Plan.

In the case of salt water fish and other marine organisms, the requirements of FESA are enforced by the National Marine Fisheries Service (NMFS). The U.S. Fish and Wildlife Service (USFWS) enforces all other cases.

Section 9 of FESA as amended, prohibits the “take” of any fish or wildlife species listed under FESA as endangered. Under Federal regulation, “take” of fish or wildlife species listed as threatened is also prohibited unless otherwise specifically authorized by regulation. “Take,” as defined by FESA, means “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” “Harm” includes not only the direct taking of a species itself, but the destruction or modification of the species’ occupied habitat resulting in the potential injury of the species. As such, “harm” is further defined to mean “an act which actually kills or injures wildlife; such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering” (50 CFR 17.3).

Section 9 applies to any person, corporation, federal agency, or any local or State agency. If “take” of a listed species is necessary to complete an otherwise lawful activity, this triggers the need to obtain an incidental take permit either through a Section 7 Consultation as discussed further below (for federal actions or private actions that are permitted or funded by a federal agency), or requires preparation of a Habitat Conservation Plan (HCP) pursuant to Section 10 of FESA (for state and local agencies, or individuals, and projects without a federal “nexus”).

Section 7(a)(2) of the Act requires that each federal agency consult with the USFWS to ensure that any action authorized, funded or carried out by such agency is not likely to jeopardize the continued existence of an endangered or threatened species or result in the destruction or adverse modification of critical habitat for listed species. The Section 7 consultation process applies only to actions taken by federal agencies, or actions by private parties that require federal agency permits, approval, or funding (for example, a private landowner applying to the U.S. Army Corps of Engineers (Corps) for a permit). Section 7's consultation process is triggered by a determination of the "action agency" (i.e., the federal agency that is carrying out, funding, or approving a project) that the project "may affect" a listed species or critical habitat. If an action is likely to adversely affect a listed species or designated critical habitat, formal consultation with the USFWS is required.

B. California Endangered Species Act

In 1984, the State enacted the California Endangered Species Act (CESA) (California Fish and Game Code §2050). The basic policy of CESA is to conserve and enhance endangered species and their habitats.

If proposed projects would result in impacts to a State listed species, an "incidental take" permit pursuant to §2081 of CDFG Code would be necessary (versus a Federal incidental take permit for Federal listed species). For species listed under both state and federal ESA, the CDFW can instead issue a Consistency Determination with the federal permit. No §2081 permit may authorize the take of a fully protected species for which the Legislature has imposed strict prohibitions on all forms of "take."

C. Migratory Bird Treaty Act

The Migratory Bird Treaty Act (16 U.S.C. 703-711) makes it unlawful at any time, by any means, or in any manner to pursue, hunt, take, capture, kill, attempt to transport (import or export) any migratory bird including any part, nest, or egg of any such bird. Essentially, the law includes all species of birds, not just those typically considered migratory. Rock doves, a.k.a. "pigeons" (*Columba livia*) and European starlings (*Sturnus vulgaris*) are the only birds that are exceptions to this law.

III. RESULTS AND CONCLUSION

A. Methodology

The biological resources in the project area and region were identified through a site assessment and a literature review, completed by Zentner Planning and Ecology in October 2017.

1. Site Analyses

Zentner Planning and Ecology has conducted yearly monitoring and analysis of the site over the last 20 years. We most recently completed a site assessment on October 12, 2017. The site review and survey were conducted to document existing site conditions and assess the site's potential to support special status habitats, plants and wildlife.

2. Literature Review

The literature review provided information on general biological resources, rare or otherwise special habitats, and on the distribution and habitat requirements of plant and animal species ("taxa") that have been reported from or are suspected to occur in the project vicinity. Information was gathered from Zentner Planning and Ecology files and the California Natural Diversity Database (CNDDDB) that compiles records of species occurrences from CDFW (California Department of Fish and Wildlife). Other information included the CNPS's Inventory of Rare and Endangered Vascular Plants of California (CNPS 2017) and other sources reflecting the taxa noted above to define a list of special status species that could potentially occur on the project site or in the region. **Figure 2** shows the CNDDDB results for special status animal and plant species respectively. See **Appendix A** for more information.

B. Results

1. Biological Communities

A brief description of the biological communities that are present on the site is provided below. A list of all plant species observed on the site is provided in **Appendix B**.

CEMEX
CACHE CREEK MINE
 Madison, California

LEGEND:

★ PROJECT LOCATION

○ 5-mile buffer

● black-crowned night heron, *Nycticorax nycticorax*, 18

● Swainson's hawk, *Buteo swainsoni*, 722, 734, 888, 889, 890, 891, 893, 894, 895, 920, 1037, 1061, 1062, 1063, 1180, 1187, 1285, 1286, 1403, 1404, 1409, 1711, 1943, 2062, 2155, 2157, 2158, 2159, 2160, 2161, 2162, 2164, 2172, 2173, 2174, 2177, 2187

● mountain plover, *Charadrius montanus*, 24

● burrowing owl, *Athene cunicularia*, 660, 661, 662

● bank swallow, *Riparia riparia*, 147, 148, 149

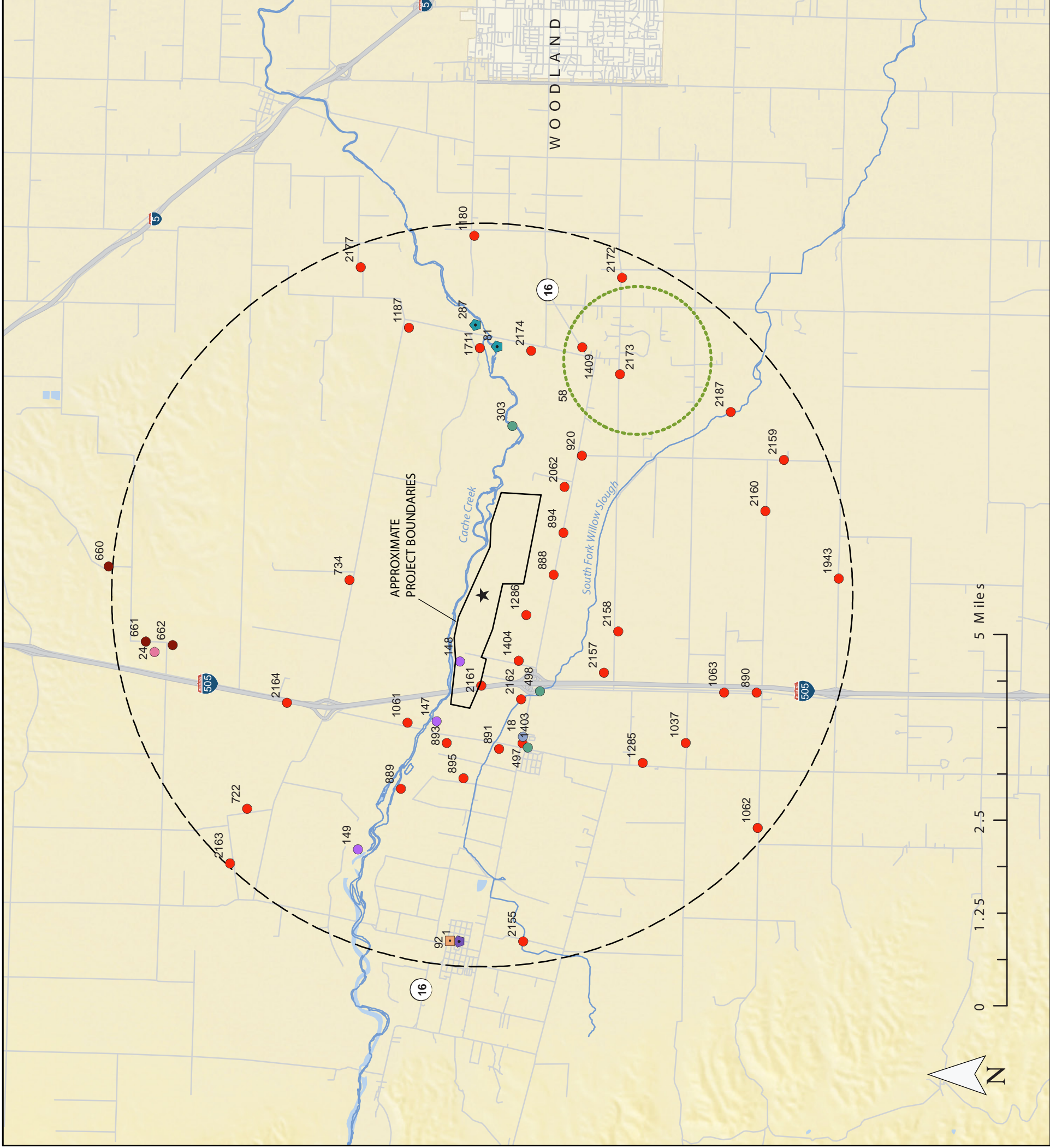
● tricolored blackbird, *Agelaius tricolor*, 303, 497, 498, 830

● western red bat, *Lasiorus blossevillii*, 92

● valley elderberry longhorn beetle, *Desmocerus californicus dimorphus*, 81, 284, 287

● *Blennosperma vernal* pool andrenid bee, *Dandrena blennospermatis*, 1

○ California alkali grass, *Puccinellia simplex*, 58



BY: CJL DATE: 12/13/2017, 03:47 pm

PROJECT: 1076 Cache Creek

FILE: D:\Graphic Designer\My Documents\PROJECTS\1000-1100\1076 Cache Creek\Adobe\1076 CNDDDB map 17-10-11

SOURCE: CNDDDB shapefiles October 2017

a. Perennial Marsh

Perennial marsh is restricted to the periphery of the deeper pools found within Cache Creek. These pools usually are formed within eroded cuts near the toe of the creek banks or within beaver dams that are common throughout the channel. These marshes support deep-rooted perennials such as bulrush (*Schoenoplectus acutus*), cattail (*Typha sp.*) and rushes (*Juncus sp.*).

b. Riparian

The riparian vegetation on site is primarily located near the toe of the creek banks along Cache Creek. It is also found in old carved out creek meanders on both the north and south banks, with some of the old meanders relatively high in elevation compared to the existing channel bed. A few of these old meanders are located within the project site within a distance of approximately 150 feet of the channel bed. These riparian areas are dominated by various species of willows (*Salix sp.*), Fremont cottonwood (*Populus fremontii*) and mulefat (*Baccharis salicifolia*).

c. Oak Savanna

The oak savanna runs along a relatively narrow band near the top of the southern bank of Cache Creek. This habitat, which is dominated by valley oak (*Quercus lobata*) with an understory of annual grassland, likely covered much of the region in proximity to Cache Creek prior to human disturbance.

d. Annual Grassland

Perennial grassland habitat, along with oak savanna, likely once co-dominated the entire site from the banks of Cache Creek to the southern edge of the property along Highway 16. The existing grassland is dominated by non-native, annual grasses such as wild oat (*Avena fatua*), soft chess (*Bromus hordeaceus*), ripgut (*Bromus diandrus*), and rye (*Festuca perennis*). It is found along the upper banks of Cache Creek and on the terrace between the creek and the active mining areas and agricultural areas. A more ruderal form of the annual grassland is found along the margins of these mined areas and the agricultural parcels.

e. Ruderal

A portion the annual grassland habitat is dominated by ruderal (weedy) vegetation. These areas are generally located near the CEMEX operating plant or in disturbed areas adjacent to mining or agricultural fields. Habitat in these areas are dominated by thistles (milk thistle, *Silybum marianum*; bull thistle, *Cirsium vulgare*), starthistle (*Centaurea solstitialis*) and other weedy species.

f. Agriculture

The majority of the site consists of agricultural land that is currently being mined or will be mined in the future. Recently the site was in wheat and oat hay crop production. In prior years crops have included corn, sunflowers, and tomatoes.



Photo 2: View of an existing, on-site agricultural field. October 2017

2. Observed Plant and Wildlife Occurrences

The site is primarily agricultural and as such, is dominated by relatively common native species. The site also contains some areas of native species and invasive, non-native species. The complete list of vegetation observed on the site is detailed in **Appendix B**. A relatively small amount of wildlife was observed on the site. This included a Swainson's hawk flying over the site and a number of relatively common bird species, fish, reptiles, and mammal sign that were observed. The complete list of vertebrates is detailed in **Appendix C**.

3. Critical Habitats

No designated critical habitats occur on the site.

4. Special Status Species

A total of nine special status wildlife and one special status plant species are found within five miles of the project site according to CNDDDB observations. There is no habitat or nesting habitat on site for four of these ten wildlife and plant species including tricolored blackbird (*Agelaius tricolor*), mountain plover (*Charadrius montanus*), Blennosperma vernal pool andrenid bee (*Andrena blennospermatis*), and California alkali grass (*Puccinellia simplex*). Two other additional species are unlikely to be found on the site including western burrowing owl (*Athene cunicularia*) and black-crowned night heron (*Nycticorax nycticorax*; nesting colony). While these species are known from the region, there is limited habitat on-site and would likely have been observed in the over 20 years of monitoring the site. In the case of the burrowing owl, few ground squirrels or rodent burrows have ever been identified on the site. In addition, the ongoing site disturbance further reduces their likelihood to occur on the site. In the case of black crowned night heron, habitat is relatively limited and none have been observed, though their colonies are easy to observe and often remain in the same rookeries over many years. Therefore, these species are unlikely to occur on-site.

Four species are either known from the site or there is habitat on the site for which the species depends. These species include bank swallows, Swainson's hawk, valley elderberry longhorn beetle (VELB) and western red bat, which are described in more detail below.

Bank swallow (nesting) (*Riparia riparia*) (ST; BLM:S, IUCN:LC)¹

Bank swallow nesting in the sheer face of the active mining portion of the Hutson parcel (proposed Project Phase 1) was observed in 1991-1993. Bank swallows were also observed during site monitoring in 2009. They were resting on cables in the east-most active pit on the site, some were actively foraging over the pit, and they were continuing to use nesting holes on the older mine banks in the west and northwest ends of this pit.

Inactive bank swallow nesting holes were also observed on the creek bank within an area slated for bank stabilization in 2010. This work to stabilize the bank was conducted outside of the bank swallow nesting season and with a biological monitor present. This work has since been completed and bank swallows or swallow holes have not been re-observed in the area. However, flood events continue to reshape the slope banks of

¹ The abbreviations used here and throughout this section are defined at Appendix D, pp. D-9 through D-11.

Cache Creek and it is likely that bank swallows will continue to use the sheer faces of the Creek bank that contain appropriate habitat.

Swainson's Hawk (*Buteo swainsoni*) (ST, BLM:S, IUCN:LC; USFWS: BCC)

Swainson's hawks have been routinely observed foraging or flying over the site including each of the last three years. However, there is relatively limited tree nesting habitat for Swainson's hawks on-site. Suitable trees exist within the cottonwoods along the Interstate 505 screen; however, disturbance there and the abundance of other nearby habitat makes nesting relatively unlikely. Suitable trees also occur within the habitat depressions on-site and along the banks of Cache Creek, which both contain relatively tall riparian trees. Though no nesting Swainson's hawks or other nesting raptors have ever been observed on the site, these and other trees within the site contain potential nesting habitat for raptor and other migratory birds.

The Project will not impact any new Swainson's hawk foraging habitats that were not previously analyzed and mitigated for in the 1996 Solano EIR and Existing Entitlements.

Valley Elderberry Longhorn beetle (*Desmocerus californicus dimorphus*) (FT)

The Valley elderberry longhorn beetle (VELB) is entirely dependent on its host plant, blue elderberry (*Sambucus mexicana*), which is a common component of the remaining riparian forests and adjacent upland habitats of California's Central Valley. Elderberries are most abundant on riparian high terraces with recent alluvial substrates elevated slightly above cottonwood and willow-dominated floodplain forests (Barr 1991).

Elderberry plants are known to be present within the banks of Cache Creek and have the potential to occur within the Wildlife Habitat areas. Because VELB are known from the region, elderberries occurring on site have the potential to host VELB. No elderberries are slated for removal as part of the Project, however and no VELB have been observed on the site.

Western red bat (*Lasiurus blossevillii*) (WBWG:H; DFW:SSC; IUCN:LC)

The western red bat roosts in trees and shrubs adjacent to streams and open fields and in the Central Valley have been noted in agricultural trees (Shump and Shump 1982). They are associated with mature stands of cottonwoods and sycamores in riparian habitats (Pierson et al 2006). Limited potential habitat occurs within the habitat depressions and along the banks of Cache Creek. No trees are scheduled to be removed in these areas.

5. Fisheries

Two federally threatened species, Delta Smelt (*Hypomesus transpacificus*), which is also state threatened, and Central Valley Distinct population segment (DPS) Steelhead (*Oncorhynchus mykiss irideus*) are known from the region. In addition, fall-run Chinook salmon (*Oncorhynchus tshawytscha*), which are a CDFW species of special concern are known from the region as well. All of these species are unlikely to occur in Cache Creek, primarily due to a number of barriers relating to farming, bypasses, and culverts, which block passage upstream. In the case of Delta smelt, Cache Creek also lacks suitable habitat for this species. For the anadromous steelhead and salmon, temperatures and stream flow also discourage use by these species. There is some anecdotal evidence, however, that suggests that during high flooding events when flows in the Yolo Bypass and other areas are very high, a small number of salmon may reach Lower Cache Creek in the vicinity of the project. Ultimately though, the project does not propose mining or reclamation activity in Cache Creek and as such impacts to fisheries are not expected.

C. Species Protection Measures

1. Swainson's Hawk and Other Nesting Bird Protection Measures

Raptors and other protected migratory birds have the potential to nest within the project site. Should active nests be present, tree and shrub removal could result in loss or abandonment of the nest and thereby result in an impact to these species. Therefore, the following measures shall be adopted to reduce the potential impacts.

If trees are to be removed anytime during the raptor and migratory bird nesting/breeding (typically February through August in the project region), a qualified biologist shall conduct a preconstruction survey of the project vicinity for nesting/breeding birds at least 14 days prior to the start of construction activities. The intent of the survey shall be to determine if active raptor nests or other species protected by the Migratory Bird Treaty Act are present within the tree removal zone. The survey area shall include all trees and shrubs within that zone that have the potential to support nesting birds.

If active nests are found in areas that could be directly affected, a no-disturbance buffer zone shall be created around active nests (typically 250 feet for raptors and 50 feet for migratory birds) during the breeding season or until a qualified biologist determines that all young have fledged. Once the young have fledged, tree removal and other construction activities may commence.

2. Bat Protection Measures

Riparian tree removal, if necessary, should occur during the season when bats are generally absent from maternity and winter roosting sites (August 15 through October 15). If activities cannot be conducted during this time frame, then a pre-construction survey of the specific trees to be impacted should be conducted. The survey will determine if the trees support suitable roosting habitat and to determine occupancy of those trees that contain suitable habitat. If bats are found to be present, a plan for removal or exclusion should be developed by a qualified biologist and approved by the CDFW.

3. VELB Protection Measures

The Project is not anticipated to impact elderberry shrubs; however, the following measures are suggested to minimize the potential for any future impacts:

1. A preconstruction survey for elderberry shrubs shall be performed by a qualified biologist prior to the initiation of each phase of mining.
2. If evidence of VELB are found during a preconstruction survey, then, avoidance and minimization measures shall be employed until such time as consultation with USFWS has occurred.
3. Avoided elderberries should be flagged and a protective buffer should be erected around each with orange construction or similar highly visible material. Temporary protective fencing shall ensure a minimum buffer of at least 20 feet from the driplines of the elderberry shrubs during construction.
4. Following consultation with USFWS, the operator shall either maintain avoidance of any occupied elderberry shrubs, or comply with mitigation measures and conditions required by USFWS.
5. Personnel involved with excavation and ground disturbance activities, and on-site supervision of same, will receive environmental awareness training regarding the elderberry shrubs, the status of the beetle, its host plant and habitat.

4. Bank Swallow Protection Measures

Bank swallow surveys should be conducted annually within 14 days of March 1 to ensure that active nesting birds are not present on the site in areas that will be disturbed

between March 1 and July 31. In addition, the project will restore, to the extent necessary, the bluffs above the easterly riparian depression as agreed to as part of the Existing Entitlements. This riparian depression was found to be suitable habitat for bank swallows with near-vertical bluffs. Bank swallows were noted as having recently begun nesting in these bluffs as of approximately 1997.

D. Summary Conclusion

The site contains habitat for four special status species. The species protection measures identified in this report detail preconstruction surveys and other measures to ensure adequate species protection.

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APPENDIX A
CNDDDB RESULTS



Selected Elements by Element Code
California Department of Fish and Wildlife
California Natural Diversity Database



Query Criteria: BIOS selection

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
ABNGA11010	<i>Nycticorax nycticorax</i> black-crowned night heron	None	None	G5	S4	
ABNKC19070	<i>Buteo swainsoni</i> Swainson's hawk	None	Threatened	G5	S3	
ABNNB03100	<i>Charadrius montanus</i> mountain plover	None	None	G3	S2S3	SSC
ABNSB10010	<i>Athene cunicularia</i> burrowing owl	None	None	G4	S3	SSC
ABPAU08010	<i>Riparia riparia</i> bank swallow	None	Threatened	G5	S2	
ABPBXB0020	<i>Agelaius tricolor</i> tricolored blackbird	None	Candidate Endangered	G2G3	S1S2	SSC
AMACC05060	<i>Lasiurus blossevillii</i> western red bat	None	None	G5	S3	SSC
IICOL48011	<i>Desmocerus californicus dimorphus</i> valley elderberry longhorn beetle	Threatened	None	G3T2	S2	
IIHYM35030	<i>Andrena blennospermatis</i> Blennosperma vernal pool andrenid bee	None	None	G2	S2	
PMPOA53110	<i>Puccinellia simplex</i> California alkali grass	None	None	G3	S2	1B.2

Record Count: 10

APPENDIX B

PLANT SPECIES OBSERVED

<u>Scientific Name</u>	<u>Common Name</u>	<u>Habitats</u>
<i>Achillea millefolium</i> *	yarrow	g, r
<i>Asclepias fascicularis</i> *	narrowleaf milkweed	g
<i>Artemisia douglasiana</i> *	mugwort	r
<i>Arundo donax</i>	giant reed grass	r
<i>Avena fatua</i>	wild oat	r, w, g
<i>Baccharis pilularis</i> *	coyote bush	g, s
<i>Baccharis salicifolia</i> *	mulefat	r, p
<i>Brassica nigra</i>	black mustard	w, g, r
<i>Bromus diandrus</i>	ripgut grass	w, r, g, s
<i>Bromus hordeaceus</i>	soft chess	w, r, g, s
<i>Bromus madritensis</i>	compact brome	w, r, g, s
<i>Carduus pycnocephalus</i>	Italian thistle	w, r, g, s
<i>Centaurea solstitialis</i>	yellow starthistle	w, r, g, s
<i>Chenopodium album</i>	lamb's quarters	r
<i>Cirsium vulgare</i>	bull thistle	w
<i>Conium maculatum</i>	poison hemlock	r
<i>Conyza canadensis</i> *	horse weed	r, g
<i>Croton setigerus</i> *	dove weed	r, g
<i>Crypsis schoenoides</i>	water timothy	r, p
<i>Cyperus eragrostis</i> *	tall flat sedge	r, p
<i>Datura sp.</i> *	jimsonweed	g, s
<i>Dittrichia graveolens</i>	stinkwort	w, r, g, s
<i>Elymus glaucus</i> *	blue wild-rye	g, s, r
<i>Elymus triticoides</i> *	creeping wildrye	g, r, s
<i>Eschscholzia californica</i> *	California poppy	g, s
<i>Erodium botrys</i>	broad-leaved storksbill	w, g
<i>Festuca microstachys</i> *	6-weeks fescue	g, r
<i>Festuca myuros</i>	rattail fescue	g, w
<i>Festuca bromoides</i>	brome fescue	g, w
<i>Festuca perennis</i>	ryegrass	r, g, w
<i>Geranium dissectum</i>	cut-leaved geranium	g
<i>Grindelia camporum</i> *	gumplant	g
<i>Heliotropium sp.</i> *	Heliotrope	g, s
<i>Helminthotheca echioides</i>	prickly ox tongue	r, g, w
<i>Hirschfeldia incana</i>	shortpod mustard	r, g, w

<i>Hordeum brachyantherum</i> *	meadow barley	r, g
<i>Hordeum leporinum</i>	hare barley	g, w
<i>Juglans hindsii</i> *	California walnut	s
<i>Juncus sp.</i> *	rush	r, p
<i>Lepidium latifolium</i>	perennial pepperweed	r, s, w, g
<i>Lythrum hyssopifolia</i>	hyssop loosestrife	p
<i>Marrubium vulgare</i>	white horehound	r
<i>Medicago polymorpha</i>	bur clover	g
<i>Nicotiana glauca</i>	tree tobacco	r, s
<i>Polypogon monspeliensis</i>	rabbitsfoot grass	r, p
<i>Populus fremontii</i> *	Fremont cottonwood	r
<i>Quercus lobata</i> *	valley oak	s
<i>Raphanus sativus</i>	wild radish	w, g
<i>Rumex crispus</i>	curly dock	r, g
<i>Saccarum ravennae</i>	ravennagrass	r
<i>Salix exigua</i> *	grey willow	r
<i>Salix lasiolepis</i> *	arroyo willow	r
<i>Salix laevigata</i> *	red willow	r
<i>Salix gooddingii</i> *	black willow	r
<i>Salsola tragus</i>	Russian thistle	w
<i>Sambucus nigra</i> *	blue elderberry	r, s
<i>Schoenoplectus acutus</i> *	bulrush	p
<i>Silybum marianum</i>	milk thistle	w
<i>Solidago californica</i> *	goldenrod	r
<i>Sonchus spp.</i>	sow thistle	w
<i>Stipa miliacea</i> var. <i>miliacea</i>	smilo grass	r
<i>Stipa pulchra</i> *	purple needlegrass	g, s
<i>Tamarix sp.</i>	tamarisk	r
<i>Trifolium hirtum</i>	rose clover	g
<i>Typha sp.</i> *	cattail	r
<i>Xanthium strumarium</i> *	cocklebur	r
<i>Xanthium spinosum</i>	prickly cocklebur	r

* = native

Habitat notations:

- g = annual grassland
- a = agriculture
- w = weedy (ruderal)
- s = oak savanna
- p = perennial marsh
- r = riparian (cache creek, depressions)

APPENDIX C

VERTEBRATES RECORDED

FISH

bass (largemouth or smallmouth; *Micropterus sp.*) (found in deep pools within Cache Creek)

AMPHIBIANS

N/A

REPTILES

western fence lizard (*Sceloporus occidentalis*)

BIRDS

Swainson's hawk (*Buteo swainsonii*) (flying over site)

wild turkey (*Meleagris gallopavo*)

turkey vulture (*Cathartes aura*) (flying over site)

red-tailed hawk (*Buteo jaaicensis*) (flying over site)

American crow (*Corvus brachyrhynchos*)

blackbird (*Agelaius sp.*)

sparrow (*Zonotrichia sp.*)

European starling (*Sturnus vulgaris*)

house finch (*Carpodacus mexicanus*)

pigeon (*Columba livia*)

mourning dove (*Zenaida macroura*)

American kestrel (*Falco sparverius*)

black phoebe (*Sayornis nigricans*)

great egret (*Ardea alba*)

scrub jay (*Aphelocoma californica*)

MAMMALS

California ground squirrel (*Spermophilus beecheyi*) (burrows)

jackrabbit (*Lepus californicus*) (tracks)

gopher (*Thomomys sp.*) (mounds)

blacktail deer (*Odocoileus hemionus columbianus*) (tracks)

beaver (*Castor canadensis*) (dams)

coyote (*Canis latrans*) (scat)

raccoon (*Procyon lotor*) (tracks)

APPENDIX D

SPECIAL STATUS SPECIES DEFINITIONS

DEFINITIONS FOR SPECIAL STATUS SPECIES DESIGNATIONS

Federal Endangered Species Act

The following are the standard definitions for the status designations under the federal Endangered Species Act (ESA), implementing regulations and relevant notices (as published in the Federal Register). The ESA is administered by the U.S. Fish and Wildlife Service (USFWS).

Endangered – A species that is in danger of extinction throughout all or a significant portion of its range.

Threatened – A species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Proposed for Listing – Taxa formally noticed as being under review to determine whether listing as threatened or endangered is warranted.

Candidate – Taxa for which USFWS has on file sufficient information on biological vulnerability and threat to support a proposed rule to list the species as endangered or threatened. Proposals to list have not yet been issued because this action is precluded by other listing activity. Species in this category are assigned a listing priority in order to assist the FWS in determining those species most in need of protection.

[Note: As of February 1996, the USFWS eliminated the differing categories of candidate species and now has only one category of candidate species as defined above.]

California Endangered Species Act

The following are the standard definitions for the status classifications under the California Endangered Species Act (CESA), administered by the California Department of Fish and Game (CDFG), now renamed the California Department of Fish and Wildlife (CDFW).

Endangered species – A native California bird, mammal, fish, amphibian, reptile or plant (species or subspecies) is endangered when it is in serious danger of becoming extinct throughout all, or a significant portion of, its range due to one or more causes, including loss of habitat, change of habitat, over-exploitation, predation, competition or disease (CDFW Code, Section 2062).

Threatened species – A native bird, mammal, fish, amphibian, reptile or plant (subspecies or species) is threatened when, although not presently threatened with extinction, it is likely to become an endangered species in the foreseeable future in the absence of special protection and management efforts. Any animal listed as "rare" by the Commission on or before January 1, 1985, is a threatened species (CDFW Code, Section 2067).

Candidate species – A native California species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant is a candidate when the Fish and Wildlife Commission (Commission) has formally noticed it as being under review by the CDFW to determine whether listing as threatened or endangered is warranted, or when it is the subject of a proposed rulemaking by the Commission to list as threatened or endangered (CDFW Code, Section 2068).

California Department of Fish and Game

Fully Protected – Fully Protected species may not be taken or possessed without a permit from the Fish and Wildlife Commission. Information of Fully Protected species can be found in the CDFW Code, (birds at §3511, mammals at §4700, reptiles and amphibians at §5050, and fish at §5515). Additional information on Fully Protected fish can be found in the California Code of Regulations, Title 14, Division 1, Subdivision 1, Chapter 2, Article 4, §5.93. The category of Protected Amphibians and reptiles in Title 14 has been repealed.

Species of Special Concern – A California species of special concern is a plant or animal species or subspecies that is possibly declining or is vulnerable to extirpation and may be considered for listing or for special management and protection measures. These species, although not legally protected under the CESA, are monitored by the CDFW.

It is the goal and responsibility of the CDFW to maintain viable populations of all native species. To this end, the CDFW has designated certain species as "Species of Special Concern" because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction. The goal of designating species as "Species of Special Concern" is to halt or reverse their decline by calling attention to their plight and addressing the issues of concern early enough to secure their long term viability. Not all "Species of Special Concern" have declined equally; some species may be just starting to decline, while others may have already reached the point where they meet the criteria for listing as a "Threatened" or "Endangered" species under the State and/ or Federal Endangered Species Acts.

California Native Plant Protection Act

The California Native Plant Protection Act (CNPPA), administered by the CDFW, protects "rare" plant species.

Rare – A native California plant (species, subspecies or variety) is rare when, although not presently threatened with extinction, it is in such small numbers throughout its range that it may become endangered if its present environment worsens (CDFW Code, Section 1901).

California Native Plant Society (CNPS) List of Rare, Threatened and Endangered Vascular Plants of California

The CNPS maintains a list of rare, threatened and endangered vascular plants of California which summarizes the distribution, rarity, endangerment, and ecology of these plants. CNPS updates this list approximately every four years. The most recent edition (8th ed.) was published in December 2010. The CNPS listing designations are as follows:

California Rare Plant Rank (CRPR) 1A – The plants Ranked as 1A are presumed extinct because they have not been seen or collected in the wild in California for many years. All of the List 1A plants meet the definitions of "rare", "endangered", or "threatened" contained in Fish and Game Code Section 1901 (Native Plant Protection Act), and Sections 2062 and 2067 (CESA).

CRPR 1B – The plants Ranked as 1B are rare throughout their range, and all but a few are endemic to California. List 1B plants are considered vulnerable under present circumstances or have a high potential for becoming so because of their limited or vulnerable habitat, low numbers of individuals per population, or their limited number of populations. As with List 1A plants, all of the 1B plants meet the definitions of "rare", "endangered", or "threatened" contained in Sections 1901, 2062 and 2067 of the Fish and Game Code.

CRPR 2 – Except for being common outside California, Rank 2 plants are defined similarly to List 1B plants.

CRPR 3 – Rank 3 contains plants about which more information is needed to assign them to one of the other lists or reject them. Some List 3 plants meet the definitions of "rare", "endangered", or "threatened" contained in Sections 1901, 2062 and 2067 of the Fish and Game Code.

CRPR 4 – The plants in Rank 4 are of limited distribution or infrequent throughout a broader area in California, and their susceptibility to threat appears low at this time. These plants are uncommon enough that their status should be monitored regularly. Very few List 4 plants meet the definitions of "rare", "endangered", or "threatened" contained in Sections 1901, 2062 and 2067 of the Fish and Game Code, and few, if any, are eligible for state listing.

CNPS Threat Code extensions and their meanings:

- .1 – Seriously endangered in California
- .2 – Fairly endangered in California
- .3 – Not very endangered in California

CNPS Local Listings (Alameda and Contra Costa Counties)

***A1** or ***A2** – Species in Alameda and Contra Costa Counties listed as rare, threatened or endangered statewide by federal or state agencies or by the state level of CNPS.

A1x – Species previously known from Alameda or Contra Costa Counties, but now presumed extirpated here.

A1 – Species currently known from two or less regions in Alameda and Contra Costa Counties.

A2 – Species currently known from three to five regions in the two counties, or, if more, meeting other important criteria such as small populations, stressed or declining populations, small geographical range, limited or threatened habitat, etc.

A1? – Species with taxonomic or distribution problems that make it unclear if they actually occur here.

Special Animals

California Department of Fish and Wildlife (CDFW)

Special Animals – Special animals is a general term that refers to all of the taxa that the California Natural Diversity Database (CNDDDB) is interested in tracking, regardless of their legal or protection status. This list is also referred to as the list of “species at risk” or “special status species”. The CDFW considers the taxa on this list to be those of greatest conservation need and were used in the development of California’s Wildlife Action Plan (CDFG 2009). Special animals includes a broad list of agency designations.

For more information see: <http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/SPAnimals.pdf>

Watch List – The Watch List consists of taxa that were previously Species of Special Concern (SSC’s) but no longer merit SSC status or which do not meet SSC criteria but for which there is concern and a need for additional information to clarify status.

Other "Special Animal" Status Codes:

The status of species on the Special Animals List according to other conservation organizations is provided. Taxa on these lists are reviewed for inclusion in the CNDDDB Special Animals List, but are not automatically included. For example, taxa that are regionally rare within a portion of California may not be included, because they may be of lesser conservation concern across their full range in California.

These species, which are also tracked regardless of their legal or protection status, are provided below.

U.S Fish and Wildlife Service (USFWS)

Birds of Conservation Concern – The goal of the Birds of Conservation Concern report is to accurately identify the migratory and non-migratory bird species (beyond those already designated as federally threatened or endangered) that represent the US Fish and Wildlife Service's highest conservation priorities and draw attention to species in need of conservation action.

National Marine Fisheries Service (NMFS) also known as NOAA Fisheries

Species of Concern – NOAA Fisheries is responsible for the management, conservation, and protection of living marine resources within the United States Exclusive Economic Zone. Species of Concern are those species about which we have some concerns regarding status and threats, but for which insufficient information is available to indicate a need to list the species under the Endangered Species Act (ESA). Though NMFS wishes to draw proactive attention and conservation action to these species, "Species of concern" status does not carry any procedural or substantive protections under the ESA.

Bureau of Land Management

Sensitive – According to BLM Manual 6840, a Bureau Sensitive Species must meet the following criteria to be considered for sensitive species listing:

- They must be native species found on BLM-administrated lands for which BLM has the capability to significantly affect the conservation status of the species through management.
- Information is available that a species has recently undergone, is undergoing, or is predicted to undergo a downward trend such that the viability of the species or a distinct population segment of the species is at risk across all or a significant portion of the species range.

- The species depends on ecological refugia or specialized or unique habitats on BLM-administrated lands, and there is evidence that such areas are threatened with alteration such that the continued viability of the species in that area would be at risk.
- All federally designated candidate species, proposed species, and delisted species in the 5 years following their delisting shall be conserved as Bureau Sensitive Species.

Once a species is declared sensitive by the BLM, it is their obligation to determine its distribution and manage the species' habitat.

California Dept. of Forestry & Fire Protection

CDF Sensitive – California Department of Forestry and Fire Protection classifies “sensitive species” as those species that warrant special protection during timber operations. The list of “sensitive species” is given in §895.1 (Definitions) of the California Forest Practice Rules.

International Union for Conservation of Nature (IUCN)

IUCN List – The IUCN assesses, on a global scale, the conservation status of species, subspecies, varieties and even selected subpopulations in order to highlight taxa threatened with extinction, and therefore promote their conservation. Detailed information on the IUCN and the Red List is available at: <http://www.iucnredlist.org>

Marine Mammal Commission

Species of Special Concern – Section 202 of the Marine Mammal Protection Act directs the Marine Mammal Commission, in consultation with its Committee of Scientific Advisors, to make recommendations to the Department of Commerce, the Department of the Interior, and other federal agencies on research and management actions needed to conserve species of marine mammals. To meet this charge, the Commission devotes special attention to particular species and populations that are vulnerable to various types of human-related activities, impacts, and contaminants. Such species may include marine mammals listed as Endangered or Threatened under the Endangered Species Act or as depleted under the Marine Mammal Protection Act. In addition, the Commission often directs special attention to other species or populations of marine mammals not so listed whenever special conservation challenges arise that may affect them.

More information on the Marine Mammal Protection Act and the Marine Mammal Species of Special Concern list is available at: <http://www.mmc.gov/species/welcome.shtml>

U.S Forest Service

Sensitive – USDA Forest Service defines sensitive species as plant and animal species identified by a regional forester that are not listed or proposed for listing under the Federal Endangered Species Act for which population viability is a concern, as evidenced by significant current or predicted downward trends in population numbers or density, or significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution. Regional Foresters identify sensitive species occurring within each region. California is the Pacific Southwest Region (Region 5).

More information is available at: <http://www.fs.usda.gov/main/r5/plants-animals> and at: http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5435266.xlsx

North American Bird Conservation Initiative (NABCI)

North American Bird Conservation Initiative Watchlist – The North American Bird Conservation Initiative is a coalition of private organization and government agencies. They work to ensure the long-term health of North America's native bird populations and publish an annual State of the Birds report. The annual State of the Bird report includes a watch list of bird species in need of conservation help and classifies the birds as either Red Watch List or Yellow Watch List species. Species on the Red Watch List have extremely high vulnerability, and Yellow Watch List species are species that may be range restricted or may be widespread but with declines and high threats. More information is available at <http://stateofthebirds.org>.

American Fisheries Society (AFS)

AFS List – Designations for freshwater and diadromous species were taken from the paper: Jelks, L., S.J. Walsh, N.M. Burkhead, S. Contreras-Balderas, E. Díaz-Pardo, D.A. Hendrickson, J. Lyons, N.E. Mandrak, F. McCormick, J.S. Nelson, S.P. Platania, B.A. Porter, C.B. Renaud, J. J. Schmitter-Soto, E.B. Taylor, and M.L. Warren, Jr. 2008. Conservation status of imperiled North American freshwater and diadromous fishes. *Fisheries* 33(8):372-407. Available at:

http://www.fisheries.org/afs/docs/fisheries/fisheries_3308.pdf

Designations for marine and estuarine species were taken from the paper: Musick, J.T. et al. 2000. "Marine, Estuarine, and Diadromous Fish Stocks at Risk of Extinction in North America (Exclusive of Pacific Salmonids). *Fisheries* 25(11):6-30. Available at:

<http://www.flmnh.ufl.edu/fish/sharks/sawfish/Reprint1390.pdf>

Western Bat Working Group (WBWG)

WBWG List – The WBWG is comprised of agencies, organizations and individuals interested in bat research, management and conservation from the 13 western states and provinces. The goals are (1) to facilitate communication among interested parties and reduce risks of species decline or extinction; (2) to provide a mechanism by which current information on bat ecology, distribution and research techniques can be readily accessed; and (3) to develop a forum to discuss conservation strategies, provide technical assistance and encourage education programs. Species are ranked as High, Medium, or Low Priority in each of 10 regions in western North America. Because California includes multiple regions where a species may have different WBWG Priority ranks, the CNNDDB includes categories for Medium-High, and Low-Medium Priority. The CNDDDB tracks bat species that are at least Low-Medium Priority in California. More information is available at: <http://www.wbwg.org>

The Xerces Society

Red List – The Xerces Society is an international non-profit organization dedicated to protecting biological diversity through invertebrate conservation. The Society advocates for invertebrates and their habitats by working with scientists, land managers, educators, and citizens on conservation and education projects. Their core programs focus on endangered species, native pollinators, and watershed health. More information on the Red List is available at:
<http://www.xerces.org>

Special Status Species Abbreviations

Federal Endangered Species Act

FE	Federally-listed as endangered
FT	Federally-listed as threatened
FPE	Federally proposed for listing as endangered or threatened
FC	Federal candidate for listing as endangered or threatened

State Endangered Species Act

SE	State-listed as endangered
ST	State-listed as threatened
SC	State candidate for listing as endangered or threatened

California Department of Fish and Wildlife

CFP	Fully protected
CSC	California species of special concern

California Native Plant Protection Act

CNPPA: Rare	Rare plant
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California Native Plant Society

CRPR	California Rare Plant Rank
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SPECIAL ANIMALS (SA)

California Department of Fish and Wildlife

CDFW: WL Watch list

CDFW: SA Special Animal

US Fish and Wildlife Service

USFWS:BCC Birds of Conservation Concern

NMFS (NOAA Fisheries)

NMFS: SC Species of Concern

Bureau of Land Management

BLM:S Sensitive

California Dept. of Forestry & Fire Protection

CDFS:S Sensitive

International Union for Conservation of Nature

IUCN:CD Conservation Dependent

IUCN:CR Critically Endangered

IUCN:DD Data Deficient

IUCN:EN Endangered

IUCN:LC Least Concern

IUCN:NT Near Threatened

IUCN:VU Vulnerable

Marine Mammal Commission

MMC:SSC Species of Special Concern

National Marine Fisheries Service

NMFS:SC Species of Special Concern

U.S Forest Service

USFS:S Sensitive

Western Bat Working Group

WBWG: H High priority

WBWG: LM low-medium priority

WBWG: M medium priority

WBWG: MH medium-high priority

Xerces Society Red List

X: CI Critically imperiled

X: DD Data deficient

X: IM Imperiled

X: VU Vulnerable

North American Bird Conservation Initiative

NABCI: RWL Red watch list

NABCI: YWL Yellow watch list

American Fisheries Society

AMS: E Endangered

AMS: T Threatened

AMS: V Vulnerable