APPENDIX D EQUIPMENT USAGE FOR CONSTRUCTION AND OPERATIONS

Table D1. Detailed Information on Construction and Operational Activities for the Alamo Creek and Ulatis Creek Detention Basins Project

Construction/Maintenance Details	Alamo Site	Ulatis Site
Total site acreage	79 acres	50 acres
Area to be cleared and grubbed	50 acres	37 acres
Depth of excavation	17 feet	22 feet
Total amount of soil excavated	700,000 to 800,000 cy	500,000 to 600,000 cy
Amount of soil reused onsite	300,000 cy	150,000 to 200,000 cy
Amount of soil to be hauled offsite	400,000 to 500,000 cy	300,000 to 450,000 cy
Number of construction days	450 days	340 days
Number of days to haul soil offsite	240 days	190 days
Number of truck haul trips per day	166 one-way trips* (83 round-trips)	190 one-way trips* (95 round-trips)
Number of estimated trips to haul off unused soil	500,000 yd^3 in 25 yd^3 per truck = 20,000 loaded trips	450,000 yd^3 in 25 yd^3 per truck = 18,000 loaded trips
Estimated distance of travel for offsite soil disposal	15 miles one way	15 miles one way
Soil disposal haul route	No haul trips will be permitted through City streets unless needed to access a disposal site within the City, in which case the most direct route will be used that avoids local residential streets, subject to approval by the City's Traffic Engineer. In general, truck loads will leave Rogers Lane from the Alamo site and Bucktown Lane from the Ulatis site and head west on Vaca Valley Road. The majority of haul trips will turn south on Pleasants Valley Road to Interstate 80 where they may go either east or west depending on the receiving site location. A small number of haul trips may travel north on Pleasants Valley Road if the contractor has a receiving location in that direction; however this is not going to be as likely and was given a smaller percentage of trip distribution.	
Type, number, hours of daily use, and overall duration associated with construction equipment	See Table A2 below	
Number of vehicle trips associated with onsite passive recreation uses	15 vehicle trips per month (annualized average as more frequent use may occur in the spring versus the winter)	
Type, number, hours of daily use, and overall duration for equipment used during maintenance and/or agricultural activities	***Equipment:*** 1 farm tractor, 1 riding mower, 2 pickup trucks ***Hours of daily use:*** tractor and riding mower (8 hours), truck (2 hours) ***Duration:*** tractor (4 days/month for 2 months), mower (2 days/ week for 1 week), truck (1 day/month for 6 months)	

* Number of truck haul trips per day is based on the number of construction days required for each basin. For the Alamo site, as compared to the Ulatis site, Alamo will require more construction days, more days to haul soil offsite, but fewer trips per day because the access road (Rogers Lane) only allows for one-way travel.

Table D2. Detailed Information on Equipment Necessary for Basin Construction at the Alamo and Ulatis Sites

Type of Equipment	Construction Phase[a]	Number of Vehicles [b]	Hours of Daily Use [b]	Overall Duration of Use (days) [b]
Water Trucks (rubber tired)	All phases	3	8	120
Excavators (tracked)	Tree removal, initial grading and topsoil removal, subsoil removal, berm construction	3	8	80
Backhoe (rubber tired)	All phases	2	8	145
Loader	Tree removal, initial grading and topsoil removal, subsoil removal, berm construction	1	8	10
Bulldozer (tracked)	Tree removal, subsoil removal	4	8	50
Scrapers D-8, D-9 with ripper (rubber tired)	Initial grading and topsoil removal, subsoil removal	5	8	55
Compactors (sheeps foot)	Berm construction, final grading	4	8	55
Bottom Dump Trucks (rubber tired)	Initial grading and topsoil removal, subsoil removal	10	8	240 for Alamo 190 for Ulatis
Various Pickup Trucks (rubber tired)	All phases	10	8	95
Hydro-seed vehicle	Stabilization[c]	1	8	3
Tractor with Disc	Stabilization[c]	1	8	15
Crane (1 ton)	Berm construction (installation of outlet pipe)	1	8	20

[a] Construction phases and duration (in approximate days) will occur in the following order for each project site:

	Alamo	Ulatis
1) Tree removal	10	2
2) Initial grading and topsoil removal	30	30
3) Subsoil excavation	240	190
4) Berm construction	60	60
5) Final grading	30	30
6) Stabilization	15	15

[b] Information on number of vehicles, hours of daily use, and overall duration of construction equipment was estimated to be the same for both the Alamo and Ulatis detention basins, with the exception of overall duration of use for bottom dump trucks. This Information was estimated based on actual construction information for a similar detention basin, which was multiplied by a factor of 2.6 as the Alamo Basin (larger of the two basins) will excavate 2.6 times more soil than the comparison basin. Additional details were provided by the City of Vacaville's Project Engineer to refine these estimates.

[c] Stabilization includes placement of rip rap, installation of interlocking block, and hydroseeding.

APPENDIX E AIR QUALITY MODELING

DAILY CONSTRUCTION EMISSIONS - ALAMO BASIN

PROJECT:	ALAMO DETENTION BASIN	
TOTAL SITE ACREAGE:	79	
AREA TO BE CLEARED OR GRUBBED:	50	ACRES (ASSUMES ONE-QUARTER AREA DISTURBED DAILY; 12.5 ACRES/DAY)
BERM AREA:	8.165	ACRES (ASSUMES ONE-QUARTER AREA DISTURBED DAILY; 2.04 ACRES/DAY)
NUMBER OF TOTAL CONSTRUCTION DAYS:	450	
NUMBER OF DAYS HAULING WOULD OCCUR:	240	
AMOUNT OF SOIL EXCAVATED:	800000	CYDS
EXCAVATED SOIL-MATERIAL HANDLING:	4500	TONS/DAY (Assumes 2,700 lbs/cyd, Includes loading & unloading of trucks)
SOIL REMAINING ONSITE:	300000	
TRUCK HAUL TRIPS OFFSITE/DAY:	83	ONE-WAY
	42	ROUND-TRIP
DISTANCE OF HAUL TRAVEL:	15	ONE-WAY
	30	ROUND-TRIP
WORKER COMMUTE:	15	MILES ONE-WAY
HAUL TRUCK TRAVEL ON UNPAVED SURFACES:	0.4	MILES/ONE-WAY TRIP

OFFROAD EQUIPMENT EXHAUST EMISSIONS

PHASE	#	TYPE	HOURS/DAY	UNCONTROLLED EMISSIONS (LBS/DAY) ROG	NOX	CO	PM10	PM2.5	CO2
TREE REMOVAL	3	WATER TRUCKS	8	2.940	38.250	20.490	1.500	1.260	4904.190
	3	EXCAVATORS (TRACKED)	8	2.160	9.810	16.320	0.960	0.900	1642.080
	2	BACKHOE (RUBBER TIRED)	8	0.440	4.300	2.880	0.140	0.120	654.760
	1	LOADER	8	0.220	2.150	1.440	0.070	0.060	327.380
	4	BULLDOZER	8	6.800	32.640	60.280	2.560	2.360	4983.160
	13	OFFROAD EQUIPMENT:		12.560	87.150	101.410	5.230	4.700	12511.570
		FUGITIVE DUST (ONSITE):			(Included in Initial Grading Calculation Below)				
		FUGITIVE DUST (TRAVEL ON UNPAVED ROAD SURFACES):		0.000	0.000	0.000	14.056	1.406	0.000
		WORKER COMMUTE/ON-ROAD LD VEHICLES (EXH):	23	0.345	0.345	2.760	0.035	0.035	378.120
		HAUL TRUCKS (EXH):	10	0.900	11.400	3.600	0.540	0.480	1263.300
		TOTAL DAILY EMISSIONS:		13.805	98.895	107.770	19.860	6.620	14152.990
		TOTAL DAILY EMISSIONS (w/PM CONTROL):					9.194	1.931	
INITIAL GRADING & TOPSOIL REMOVAL	3	WATER TRUCKS	8	2.940	38.250	20.490	1.500	1.260	4904.190
	3	EXCAVATORS (TRACKED)	8	2.160	9.810	16.320	0.960	0.900	1642.080
	2	BACKHOE (RUBBER TIRED)	8	0.440	4.300	2.880	0.140	0.120	654.760
	1	LOADER	8	0.220	2.150	1.440	0.070	0.060	327.380
	5	SCRAPERS (RUBBER TIRED)	8	9.200	38.250	86.450	3.500	3.200	8118.800
	14	OFFROAD EQUIPMENT:		14.960	92.760	127.580	6.170	5.540	15647.210
		FUGITIVE DUST (ONSITE):		0.000	0.000	0.000	250.000	52.500	0.000
		FUGITIVE DUST (TRAVEL ON UNPAVED ROAD SURFACES):		0.000	0.000	0.000	140.827	14.083	0.000
		WORKER COMMUTE/ON-ROAD LD VEHICLES (EXH):	24	0.360	0.360	2.880	0.036	0.036	394.560
		HAUL TRUCKS (EXH):	83	7.470	94.620	29.880	4.482	3.984	10485.390
		TOTAL DAILY EMISSIONS:		22.790	187.740	160.340	401.515	76.143	26527.160
		TOTAL DAILY EMISSIONS (w/PM CONTROL):					160.643	33.735	
SUBSOIL EXCAVATION	3	WATER TRUCKS	8	2.940	38.250	20.490	1.500	1.260	4904.190
	3	EXCAVATORS (TRACKED)	8	2.160	9.810	16.320	0.960	0.900	1642.080
	2	BACKHOE (RUBBER TIRED)	8	0.440	4.300	2.880	0.140	0.120	654.760
	1	LOADER	8	0.220	2.150	1.440	0.070	0.060	327.380
	4	BULLDOZER	8	6.800	32.640	60.280	2.560	2.360	4983.160
	5	SCRAPERS (RUBBER TIRED)	8	9.200	38.250	86.450	3.500	3.200	8118.800
	18	OFFROAD EQUIPMENT:		21.760	125.400	187.860	8.730	7.900	20630.370
		FUGITIVE DUST (ONSITE):		0.000	0.000	0.000	254.950	53.540	0.000
		FUGITIVE DUST (TRAVEL ON UNPAVED ROAD SURFACES):		0.000	0.000	0.000	143.271	30.087	0.000
		WORKER COMMUTE/ON-ROAD LD VEHICLES (EXH):	28	0.420	0.420	3.360	0.042	0.042	460.320
		HAUL TRUCKS (EXH):	83	7.470	94.620	29.880	4.482	3.984	10485.390
		TOTAL DAILY EMISSIONS:		29.650	220.440	221.100	411.475	95.553	31576.080
		TOTAL DAILY EMISSIONS (w/PM CONTROL):					165.068	34.664	

BERM CONSTRUCTION	3	WATER TRUCKS	8	2.940	38.250	20.490	1.500	1.260	4904.190
	3	EXCAVATORS (TRACKED)	8	2.160	9.810	16.320	0.960	0.900	1642.080
	2	BACKHOE (RUBBER TIRED)	8	0.440	4.300	2.880	0.140	0.120	654.760
	1	LOADER	8	0.220	2.150	1.440	0.070	0.060	327.380
	4	COMPACTORS (SHEEPS FOOT)	8	1.880	7.720	12.320	1.040	0.960	1151.120
	1	CRANE	8	0.750	2.710	7.280	0.280	0.260	739.640
	14	OFFROAD EQUIPMENT:		7.640	62.230	53.450	3.710	3.300	8679.530
		FUGITIVE DUST (ONSITE):		0.000	0.000	0.000	40.825	8.573	0.000
		FUGITIVE DUST (TRAVEL ON UNPAVED ROAD SURFACES):		0.000	0.000	0.000	14.667	1.467	0.000
		WORKER COMMUTE/ON-ROAD LD VEHICLES (EXH):	24	0.360	0.360	2.880	0.036	0.036	394.560
		TOTAL DAILY EMISSIONS:		8.000	62.590	56.330	59.238	13.376	9074.090
		TOTAL DAILY EMISSIONS (w/PM CONTROL):					23.904	5.020	
FINISH GRADING	3	WATER TRUCKS	8	2.940	38.250	20.490	1.500	1.260	4904.190
	2	BACKHOE (RUBBER TIRED)	8	0.440	4.300	2.880	0.140	0.120	654.760
	4	COMPACTORS (SHEEPS FOOT)	8	1.880	7.720	12.320	1.040	0.960	1151.120
	9	OFFROAD EQUIPMENT:		5.260	50.270	35.690	2.680	2.340	6710.070
		FUGITIVE DUST (ONSITE):		0.000	0.000	0.000	125.000	26.250	0.000
		FUGITIVE DUST (TRAVEL ON UNPAVED ROAD SURFACES):		0.000	0.000	0.000	11.611	1.161	0.000
		WORKER COMMUTE/ON-ROAD LD VEHICLES (EXH):	19	0.285	0.285	2.280	0.029	0.029	312.360
		TOTAL DAILY EMISSIONS:		5.545	50.555	37.970	139.320	29.780	7022.430
		TOTAL DAILY EMISSIONS (w/PM CONTROL):					54.915	11.532	
STABILIZATION	1	TRACTOR (RUBBER TIRED)	8	0.220	2.150	1.440	0.070	0.060	327.380
	1	HYDROSEED VEHICLE	8	0.470	1.930	3.080	0.260	0.240	287.780
	2	OFFROAD EQUIPMENT:		0.690	4.080	4.520	0.330	0.300	615.160
		FUGITIVE DUST (TRAVEL ON UNPAVED ROAD SURFACES):		0.000	0.000	0.000	7.333	0.733	0.000
		WORKER COMMUTE/ON-ROAD LD VEHICLES (EXH):	12	0.180	0.180	1.440	0.018	0.018	197.280
		TOTAL DAILY EMISSIONS:		0.870	4.260	5.960	7.681	1.051	812.440
		TOTAL DAILY EMISSIONS (w/PM CONTROL):					3.208	0.674	

ANNUAL CONSTRUCTION EMISSIONS - ALAMO BASIN

ANNUAL CONSTRUCTION SCHEDULE (IN ORDER OF OCCURRENCE)	DAYS	
Tree removal	10	CONST YR 1
Initial grading and topsoil removal	30	CONST YR 1
Subsoil excavation	80	CONST YR 1
Soil removal from site	240	CONST YR 1
Berm construction	55	CONST YR 2
Final grading	30	CONST YR 2
Stabilization	15	CONST YR 2

CONSTRUCTION YEAR 1

OFFROAD EQUIPMENT	DAYS	UNCONTROLLED EMISSIONS (TONS/YR) ROG	NOX	CO	PM10	PM2.5	CO2
WATER TRUCKS	120	0.176	2.295	1.229	0.090	0.076	294.251
EXCAVATORS (TRACKED)	80	0.130	0.589	0.979	0.058	0.054	98.525
BACKHOE (RUBBER TIRED)	145	0.026	0.258	0.173	0.008	0.007	39.286
LOADER	10	0.013	0.129	0.086	0.004	0.004	19.643
BULLDOZER	50	0.170	0.816	1.507	0.064	0.059	124.579
SCRAPERS (RUBBER TIRED)	55	0.253	1.052	2.377	0.096	0.088	223.267
COMPACTORS (SHEEPS FOOT)	0	0.000	0.000	0.000	0.000	0.000	0.000
CRANE	0	0.000	0.000	0.000	0.000	0.000	0.000
TRACTOR (RUBBER TIRED)	0	0.000	0.000	0.000	0.000	0.000	0.000
HYDROSEED VEHICLE	0	0.000	0.000	0.000	0.000	0.000	0.000
OFFROAD EQUIPMENT:		0.769	5.138	6.352	0.320	0.287	799.551
FUGITIVE DUST (ONSITE):		0.000	0.000	0.000	13.948	2.929	0.000
FUGITIVE DUST (TRAVEL ON UNPAVED ROAD SURFACES):		0.000	0.000	0.000	0.166	0.035	0.000
WORKER COMMUTE/ON-ROAD LD VEHICLES (EXH):		0.001	0.001	0.008	0.000	0.000	1.069
HAUL TRUCKS (EXH):		0.896	11.354	3.586	0.538	0.478	1258.247
TOTAL ANNUAL EMISSIONS:		1.666	16.494	9.946	14.972	3.729	2058.866
TOTAL ANNUAL EMISSIONS (w/DUST CONTROL):		1.666	16.494	9.946	7.210	2.099	2058.866
TOTAL ANNUAL EMISSIONS (w/EQUIPMENT NOX CONTROL):			15.466				

*Controlled emissions assume application of water a minimum of twice daily.

CONSTRUCTION YEAR 2

OFFROAD EQUIPMENT	DAYS	UNCONTROLLED EMISSIONS (TONS/YR) ROG	NOX	CO	PM10	PM2.5	CO2
WATER TRUCKS	0	0.000	2.295	1.229	0.090	0.076	294.251
EXCAVATORS (TRACKED)	0	0.000	0.000	0.000	0.000	0.000	0.000
BACKHOE (RUBBER TIRED)	0	0.000	0.129	0.086	0.004	0.004	19.643
LOADER	0	0.000	0.116	0.185	0.016	0.014	17.267
BULLDOZER	0	0.000	0.000	0.000	0.000	0.000	0.000
SCRAPERS (RUBBER TIRED)	0	0.000	1.052	0.563	0.041	0.035	134.865
COMPACTORS (SHEEPS FOOT)	55	0.052	0.000	0.000	0.000	0.000	0.000
CRANE	20	0.008	0.000	0.000	0.000	0.000	0.000
TRACTOR (RUBBER TIRED)	15	0.002	0.000	0.000	0.000	0.000	0.000
HYDROSEED VEHICLE	3	0.001	0.000	0.000	0.000	0.000	0.000
OFFROAD EQUIPMENT:		0.062	3.592	2.064	0.151	0.128	466.026
FUGITIVE DUST (ONSITE):		0.000	0.000	0.000	2.998	0.630	0.000
FUGITIVE DUST (TRAVEL ON UNPAVED ROAD SURFACES):		0.000	0.000	0.000	0.017	0.004	0.000
WORKER COMMUTE/ON-ROAD LD VEHICLES (EXH):		0.000	0.000	0.003	0.000	0.000	0.452
TOTAL ANNUAL EMISSIONS:		0.062	3.592	2.067	3.166	0.761	466.478
TOTAL ANNUAL EMISSIONS (w/DUST CONTROL):		0.062	3.592	2.067	1.434	0.345	466.478

*Controlled emissions assume application of water a minimum of twice daily.

ANNUAL OPERATIONAL EMISSIONS - ALAMO BASIN

End Use Vehicle Trip Rate:	15 LDA/Month			
	15 Avg Trip Length (Miles; Rural; Derived from URBEMIS2007, Solano County)			
Maintenance/Ag Vehicle Trip Rate:	1 MDT-HDT/Month			
	2 LDT/Month; 6 Months/Yr			
Maintenance/Ag Equipment Use:	1 Tractor	8 Hrs/day	2 Days/Yr	2 AnnDays
	1 Tractor/Mower	8 Hrs/day	2 Days/Yr	2 AnnDays
	1 Backhoe/Excavator	8 Hrs/day	1 Days/Yr	1 AnnDays
	1 Tractor	8 Hrs/day	8 Days/Yr	8 AnnDays
	1 Tractor/Mower	8 Hrs/day	2 Days/Yr	2 AnnDays

UNCONTROLLED EMISSIONS (LBS/DAY)

	ROG	NOX	CO	PM10	PM2.5	CO2
LDA/LDT TRIPS:	15.030	15.030	15.240	15.003	15.003	47.880
MDT/HDT TRIPS:	0.045	0.570	0.180	0.027	0.024	63.165
MAINTENANCE/END-USE OFFROAD EQUIPMENT USE:	1.100	10.750	7.200	0.350	0.300	1636.900
TOTAL ANNUAL EMISSIONS:	16.175	26.350	22.620	15.380	15.327	1747.945

*Assumes all end-use and maintenance activities/trips would occur on the same day.

UNCONTROLLED EMISSIONS (TONS/YR)

	ROG	NOX	CO	PM10	PM2.5	CO2
LDA/LDT TRIPS:	0.001	0.001	0.012	0.000	0.000	1.578
MDT/HDT TRIPS:	0.000	0.003	0.001	0.000	0.000	0.379
MAINTENANCE/END-USE OFFROAD EQUIPMENT USE:	0.002	0.016	0.011	0.001	0.000	2.455
TOTAL ANNUAL EMISSIONS:	0.003	0.021	0.023	0.001	0.001	4.413

APPENDIX F PLANT AND WILDLIFE SPECIES LISTS

This appendix includes the following:

U.S. Fish and Wildlife Species List

California Native Plant Society Species List

Plant Species Observed at the Alamo Site

Plant Species Observed at the Ulatis Site

Wildlife Species Observed at the Alamo Site

Wildlife Species Observed at the Ulatis Site

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 081015015430

Database Last Updated: January 31, 2008

Quad Lists

ALLENDALE (498B)

Listed Species

Invertebrates

Branchinecta conservatio
Conservancy fairy shrimp (E)

Branchinecta lynchi
vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus
valley elderberry longhorn beetle (T)

Lepidurus packardi
vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus
delta smelt (T)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)

Rana aurora draytonii
California red-legged frog (T)

Reptiles

Thamnophis gigas
giant garter snake (T)

ELMIRA (498C)

Listed Species

Invertebrates

Branchinecta conservatio
Conservancy fairy shrimp (E)
Critical habitat, Conservancy fairy shrimp (X)

Branchinecta lynchi
Critical habitat, vernal pool fairy shrimp (X)

vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus
valley elderberry longhorn beetle (T)

Elaphrus viridis
Critical habitat, delta green ground beetle (X)
delta green ground beetle (T)

Lepidurus packardi
Critical habitat, vernal pool tadpole shrimp (X)
vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus
delta smelt (T)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)

Rana aurora draytonii
California red-legged frog (T)

Reptiles

Thamnophis gigas
giant garter snake (T)

Birds

Rallus longirostris obsoletus
California clapper rail (E)

Plants

Lasthenia conjugens
Contra Costa goldfields (E)
Critical habitat, Contra Costa goldfields (X)

Orcuttia inaequalis
San Joaquin Valley Orcutt grass (T)

MT. VACA (499A)
Listed Species

Invertebrates

Branchinecta conservatio
Conservancy fairy shrimp (E)

Branchinecta lynchi
vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus
valley elderberry longhorn beetle (T)

Syncaris pacifica

California freshwater shrimp (E)

Fish

Hypomesus transpacificus
delta smelt (T)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)

Rana aurora draytonii
California red-legged frog (T)

Reptiles

Thamnophis gigas
giant garter snake (T)

Birds

Strix occidentalis caurina
northern spotted owl (T)

FAIRFIELD NORTH (499D)
Listed Species

Invertebrates

Branchinecta conservatio
Conservancy fairy shrimp (E)

Branchinecta lynchi
vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus
valley elderberry longhorn beetle (T)

Elaphrus viridis
delta green ground beetle (T)

Syncaris pacifica
California freshwater shrimp (E)

Fish

Hypomesus transpacificus
delta smelt (T)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)

Rana aurora draytonii
California red-legged frog (T)

Reptiles

Thamnophis gigas
giant garter snake (T)

Birds

Rallus longirostris obsoletus
California clapper rail (E)

Sternula antillarum (=Sterna, =albifrons) browni
California least tern (E)

Strix occidentalis caurina
northern spotted owl (T)

Plants

Lasthenia conjugens
Contra Costa goldfields (E)

County Lists

Colusa County

Listed Species

Invertebrates

Branchinecta conservatio
Conservancy fairy shrimp (E)

Branchinecta lynchi
vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus
valley elderberry longhorn beetle (T)

Lepidurus packardi
Critical habitat, vernal pool tadpole shrimp (X)
vernal pool tadpole shrimp (E)

Fish

Acipenser medirostris
green sturgeon (T) (NMFS)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)
Critical habitat, Central Valley steelhead (X) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
Critical Habitat, Central Valley spring-run chinook (X) (NMFS)
Critical habitat, winter-run chinook salmon (X) (NMFS)

winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)

Rana aurora draytonii
California red-legged frog (T)

Reptiles

Thamnophis gigas
giant garter snake (T)

Birds

Strix occidentalis caurina
Critical habitat, northern spotted owl (X)
northern spotted owl (T)

Plants

Cordylanthus palmatus
palmate-bracted bird's-beak (E)

Candidate Species

Birds

Coccyzus americanus occidentalis
Western yellow-billed cuckoo (C)

Key:

(E) *Endangered* - Listed as being in danger of extinction.

(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.

(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.

(NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.

Critical Habitat - Area essential to the conservation of a species.

(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.

(C) *Candidate* - Candidate to become a proposed species.

(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.

(X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, **or may be affected by** projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.

  During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

  Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should

include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our critical habitat page for maps.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. More info

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6580.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be January 13, 2009.

CNPS California Native Plant Society

Inventory of Rare and Endangered Plants

v7-08d 10-05-08

Status: search results - Wed, Oct. 15, 2008 13:05 c

{QUADS_123} =~ m/499D|482A|482B|498B|498C|481B|499A|499E Search

Tip: Having trouble with a multi-word search? Try a single word, e.g. ginger or cobra.
[all tips and help.][search history]

Your Quad Selection: Fairfield North (499D) 3812231, Fairfield South (482A) 3812221, Cordelia (482B) 3812222, Allendale (498B) 3812148, Elmira (498C) 3812138, Denverton (481B) 3812128, Mount Vaca (499A) 3812241, Capell Valley (499B) 3812242, Mount George (499C) 3812232

Hits 1 to 47 of 47

Requests that specify topo quads will return only Lists 1-3.

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

open	save	hits	scientific	common	family	CNPS
		1	Astragalus tener var. tener	alkali milk-vetch	Fabaceae	List 1B.2
		1	Atriplex cordulata	heartscale	Chenopodiaceae	List 1B.2
		1	Atriplex depressa	brittlescale	Chenopodiaceae	List 1B.2
		1	Atriplex joaquiniana	San Joaquin spearscale	Chenopodiaceae	List 1B.2
		1	Atriplex persistens	vernal pool smallscale	Chenopodiaceae	List 1B.2
		1	Balsamorhiza macrolepis var. macrolepis	big-scale balsamroot	Asteraceae	List 1B.2
		1	Brodiaea californica var. leptandra	narrow-anthered California brodiaea	Liliaceae	List 1B.2
		1	Calochortus pulchellus	Mt. Diablo fairy-lantern	Liliaceae	List 1B.2
		1	Castilleja affinis ssp. neglecta	Tiburon paintbrush	Scrophulariaceae	List 1B.2
		1	Ceanothus purpureus	holly-leaved ceanothus	Rhamnaceae	List 1B.2
		1	Centromadia parryi ssp. parryi	pappose tarplant	Asteraceae	List 1B.2
		1	Cirsium hydrophilum var. hydrophilum	Suisun thistle	Asteraceae	List 1B.1
		1	Cordylanthus mollis ssp. hispidus	hispid bird's-beak	Scrophulariaceae	List 1B.1
		1	Cordylanthus mollis ssp. mollis	soft bird's-beak	Scrophulariaceae	List 1B.2

		1	**Cryptantha clevelandii var. dissita**	serpentine cryptantha	Boraginaceae	List 1B.1
		1	**Cryptantha crymophila**	subalpine cryptantha	Boraginaceae	List 1B.3
		1	**Delphinium recurvatum**	recurved larkspur	Ranunculaceae	List 1B.2
		1	**Downingia pusilla**	dwarf downingia	Campanulaceae	List 2.2
		1	**Erigeron biolettii**	streamside daisy	Asteraceae	List 3
		1	**Erigeron greenei**	Greene's narrow-leaved daisy	Asteraceae	List 1B.2
		1	**Eriogonum luteolum var. caninum**	Tiburon buckwheat	Polygonaceae	List 1B.2
		1	**Eriogonum truncatum**	Mt. Diablo buckwheat	Polygonaceae	List 1B.1
		1	**Fritillaria pluriflora**	adobe-lily	Liliaceae	List 1B.2
		1	**Gilia capitata ssp. tomentosa**	woolly-headed gilia	Polemoniaceae	List 1B.1
		1	**Hesperolinon bicarpellatum**	two-carpellate western flax	Linaceae	List 1B.2
		1	**Hesperolinon breweri**	Brewer's western flax	Linaceae	List 1B.2
		1	**Hesperolinon serpentinum**	Napa western flax	Linaceae	List 1B.1
		1	**Isocoma arguta**	Carquinez goldenbush	Asteraceae	List 1B.1
		1	**Juglans hindsii**	Northern California black walnut	Juglandaceae	List 1B.1
		1	**Lasthenia conjugens**	Contra Costa goldfields	Asteraceae	List 1B.1
		1	**Lathyrus jepsonii var. jepsonii**	Delta tule pea	Fabaceae	List 1B.2
		1	**Legenere limosa**	legenere	Campanulaceae	List 1B.1
		1	**Leptosiphon jepsonii**	Jepson's leptosiphon	Polemoniaceae	List 1B.2
		1	**Lessingia hololeuca**	woolly-headed lessingia	Asteraceae	List 3
		1	**Lilaeopsis masonii**	Mason's lilaeopsis	Apiaceae	List 1B.1
		1	**Micropus amphibolus**	Mt. Diablo cottonweed	Asteraceae	List 3.2
		1	**Monardella villosa ssp. globosa**	robust monardella	Lamiaceae	List 1B.2
		1	**Navarretia leucocephala ssp. bakeri**	Baker's navarretia	Polemoniaceae	List 1B.1
		1	**Navarretia leucocephala ssp. pauciflora**	few-flowered navarretia	Polemoniaceae	List 1B.1
		1	**Orcuttia inaequalis**	San Joaquin Valley Orcutt grass	Poaceae	List 1B.1

		1	**Plagiobothrys hystriculus**	bearded popcorn-flower	Boraginaceae	List 1B.1
		1	**Rhynchospora californica**	California beaked-rush	Cyperaceae	List 1B.1
		1	**Sidalcea hickmanii ssp. viridis**	Marin checkerbloom	Malvaceae	List 1B.3
		1	**Symphyotrichum lentum**	Suisun Marsh aster	Asteraceae	List 1B.2
		1	**Trifolium amoenum**	two-fork clover	Fabaceae	List 1B.1
		1	**Trifolium depauperatum var. hydrophilum**	saline clover	Fabaceae	List 1B.2
		1	**Viburnum ellipticum**	oval-leaved viburnum	Caprifoliaceae	List 2.3

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

No more hits.

CNPS California Native Plant Society

Inventory of Rare and Endangered Plants

v7-08d 10-05-08

Status: search results - Wed, Oct. 15, 2008 13:03 c

{QUADS_123} =~ m/499A|515C|515D|498B|498C|514C|499B|499(Search

Tip: Words meant to be searched as a unit should be wrapped in quotes, e.g., "coastal dunes".[all tips and help.][search history]

Your Quad Selection: Mount Vaca (499A) 3812241, Lake Berryessa (515C) 3812252, Monticello Dam (515D) 3812251, Allendale (498B) 3812148, Elmira (498C) 3812138, Winters (514C) 3812158, Capell Valley (499B) 3812242, Mount George (499C) 3812232, Fairfield North (499D) 3812231

Hits 1 to 38 of 38

Requests that specify topo quads will return only Lists 1-3.

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

open	save	hits	scientific	common	family	CNPS
		1	Astragalus tener var. tener	alkali milk-vetch	Fabaceae	List 1B.2
		1	Atriplex cordulata	heartscale	Chenopodiaceae	List 1B.2
		1	Atriplex depressa	brittlescale	Chenopodiaceae	List 1B.2
		1	Atriplex joaquiniana	San Joaquin spearscale	Chenopodiaceae	List 1B.2
		1	Balsamorhiza macrolepis var. macrolepis	big-scale balsamroot	Asteraceae	List 1B.2
		1	Brodiaea californica var. leptandra	narrow-anthered California brodiaea	Liliaceae	List 1B.2
		1	California macrophylla	round-leaved filaree	Geraniaceae	List 1B.1
		1	Calochortus pulchellus	Mt. Diablo fairy-lantern	Liliaceae	List 1B.2
		1	Ceanothus purpureus	holly-leaved ceanothus	Rhamnaceae	List 1B.2
		1	Centromadia parryi ssp. parryi	pappose tarplant	Asteraceae	List 1B.2
		1	Cordylanthus mollis ssp. hispidus	hispid bird's-beak	Scrophulariaceae	List 1B.1
		1	Cryptantha clevelandii var. dissita	serpentine cryptantha	Boraginaceae	List 1B.1
		1	Cryptantha crymophila	subalpine cryptantha	Boraginaceae	List 1B.3
		1	Delphinium recurvatum	recurved larkspur	Ranunculaceae	List 1B.2

		1	**Downingia pusilla**	dwarf downingia	Campanulaceae	List 2.2
		1	**Erigeron greenei**	Greene's narrow-leaved daisy	Asteraceae	List 1B.2
		1	**Fritillaria pluriflora**	adobe-lily	Liliaceae	List 1B.2
		1	**Gilia capitata ssp. tomentosa**	woolly-headed gilia	Polemoniaceae	List 1B.1
		1	**Hesperolinon bicarpellatum**	two-carpellate western flax	Linaceae	List 1B.2
		1	**Hesperolinon breweri**	Brewer's western flax	Linaceae	List 1B.2
		1	**Hesperolinon serpentinum**	Napa western flax	Linaceae	List 1B.1
		1	**Isocoma arguta**	Carquinez goldenbush	Asteraceae	List 1B.1
		1	**Juglans hindsii**	Northern California black walnut	Juglandaceae	List 1B.1
		1	**Lasthenia conjugens**	Contra Costa goldfields	Asteraceae	List 1B.1
		1	**Lathyrus jepsonii var. jepsonii**	Delta tule pea	Fabaceae	List 1B.2
		1	**Layia septentrionalis**	Colusa layia	Asteraceae	List 1B.2
		1	**Legenere limosa**	legenere	Campanulaceae	List 1B.1
		1	**Leptosiphon jepsonii**	Jepson's leptosiphon	Polemoniaceae	List 1B.2
		1	**Monardella villosa ssp. globosa**	robust monardella	Lamiaceae	List 1B.2
		1	**Navarretia leucocephala ssp. bakeri**	Baker's navarretia	Polemoniaceae	List 1B.1
		1	**Navarretia leucocephala ssp. pauciflora**	few-flowered navarretia	Polemoniaceae	List 1B.1
		1	**Orcuttia inaequalis**	San Joaquin Valley Orcutt grass	Poaceae	List 1B.1
		1	**Plagiobothrys hystriculus**	bearded popcorn-flower	Boraginaceae	List 1B.1
		1	**Rhynchospora californica**	California beaked-rush	Cyperaceae	List 1B.1
		1	**Sidalcea hickmanii ssp. viridis**	Marin checkerbloom	Malvaceae	List 1B.3
		1	**Trifolium amoenum**	two-fork clover	Fabaceae	List 1B.1
		1	**Trifolium depauperatum var. hydrophilum**	saline clover	Fabaceae	List 1B.2
		1	**Viburnum ellipticum**	oval-leaved viburnum	Caprifoliaceae	List 2.3

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

No more hits.

Vascular Plant Species Observed within the Alamo Creek Detention Basin Study Area
Field Visits Conducted in April, May, June, and October 2008

Scientific Name[1]	Common Name	Family
Acer macrophyllum	Bigleaf maple	Aceraceae
Acer negundo ssp. californicum	Box elder	Aceraceae
Aesculus californica	California buckeye	Hippocastanaceae
Allium sp.	Onion	Lillaceae
Alnus rhombifolia	White alder	Betulaceae
Amsinckia menziesii var. *menziesii*	Common fiddleneck	Boraginaceae
Anagallis arvensis [2]	Scarlet pimpernel	Primulaceae
Anthemis cotula [2]	Mayweed	Asteraceae
Apocynum cannabium	Indian hemp	Apocynaceae
Aristolochia californica	Dutchman's pipevine, (California pipevine)	Aristolochiaceae
Artemisia douglasiana	Mugwort	Asteraceae
Arundo donax [2]	Giant reed	Poaceae
Asclepias fascicularis	Narrow-leaved milkweed	Ascepiadaceae
Avena barbata [2]	Slender wild oat	Poaceae
Avena fatua [A. f. var. *glabrata, A. f.* var. *vilis]* [2]	Wild oat	Poaceae
Baccharis pilularis [B. p. sspp. *consanguinea & pilularis]*	Coyote brush	Asteraceae
Brassica nigra [2]	Black mustard	Brassicaceae
Brassica rapa ssp. *syvestris [B. campestris]* [2]	Field mustard	Brassicaceae
Bromus diandrus [2]	Ripgut grass	Poaceae
Bromus hordeaceus [B. mollis, B. racemosus] [2]	Soft chess	Poaceae
Bromus madritensis ssp. *rubens [B. r.]* [2]	Red brome	Poaceae
Calendula arvensis	Field marigold	Asteraceae
Capsella bursa-pastoris [2]	Shepherd's purse	Brassicaceae
Carduus pycnocephalus [2]	Italian thistle	Asteraceae
Centaurea solstitialis [2]	Yellow star-thistle	Asteraceae
Cichorium intybus [2]	Chicory	Asteraceae
Clarkia unguiculata	Elegant clarkia	Onagraceae
Conium maculatum [2]	Poison-hemlock	Apiaceae
Convolvulus arvensis [2]	Bind weed	Convolvulaceae
Conyza bonariensis	Horseweed	Asteraceae
Cotula australis [2]	Australian brass-buttons	Asteraceae
Cynodon dactylon [2]	Bermuda grass	Poaceae
Cynosurus echinatus [2]	Dogtail	Poaceae
Cyperus eragrostis	Umbrella-sedge	Cyperaceae
Dactylis glomerata [2]	Orchard grass	Poaceae
Datisca glomerata	Durango root	Datiscaceae
Elytrigia repens	Quack grass	Poaceae
Epilobium brevistylum = E. ciliatum ssp. *c.*	Hairy willow-herb	Onagraceae
Equisetum arvense	Common horsetail	Equisetaceae
Erodium botrys [2]	Long-beaked filaree	Geraniaceae
Erodium cicutarium [2]	Redstem filaree	Geraniaceae

Vascular Plant Species Observed within the Alamo Creek Detention Basin Study Area
Field Visits Conducted in April, May, June, and October 2008

Scientific Name[1]	Common Name	Family
Ficus carica [2]	Common fig	Moraceae
Foeniculum vulgare [2]	Sweet fennel	Apiaceae
Hedera helix	English ivy	Araliaceae
Heteromeles arbutifolia [H. a. var. *macrocarpa]*	Toyon	Rosaceae
Hordeum marinum ssp. *Gussoneanum [H. geniculatum, H. hystrix]* [2]	Mediterranean barley	Poaceae
Juglans californica	California black walnut	Juglandaceae
Juglans regia	English walnut	Juglandaceae
Kicksia elatine	Sharp-leaved fluellin	Scrophulariaceae
Lactuca serriola [2]	Prickly wild lettuce	Asteraceae
Lepechinia calycina	Pitcher sage	Lamiaceae
Lepidium nitidum	Common peppergrass	Brassicaceae
Lolium multiflorum [L. m. varieties, *L. perenne* ssp. *m.]* [2]	Italian ryegrass	Poaceae
Lotus purshianus	Pursh's lotus	Fabaceae
Malva parviflora [2]	Cheeseweed	Malvaceae
Marah oreganus [Echinocystis o.]	Oregon man-root	Cucurbitaceae
Marrubium vulgare [2]	White horehound	Lamiaceae
Medicago polymorpha [M. p. var. *brevispina, M. hispida* varieties*]* [2]	Bur-clover	Fabaceae
Mentha spicata [2]	Spearmint	Lamiaceae
Mimulus aurantiacus [Diplacus a., D. longiflorus, M. l.]	Bush monkeyflower	Scrophulariaceae
Oxalis pes-caprae [2]	Bermuda buttercup, sour-grass	Oxalidaceae
Phalaris aquatica [P. stenoptera, P. tuberosa,] [2]	Harding grass	Poaceae
Phyla nodiflora [Lippia n. var. *rosea]* [2]	Common frog-fruit	Verbenaceae
Picris echioides [2]	Bristly ox-tongue	Asteraceae
Piptatherum milliaceum	Smilo grass	Poaceae
Plantago lanceolata [2]	Narrowleaf plantain	Plantaginaceae
Plantago sp. [2]	Large leaf plantain	Plantaginaceae
Polygonum arenastrum [P. montereyense] [2]	Common knotweed, doorweed	Polygonaceae
Populus fremontii [P. f. ssp. *f.* vars. *arizonica & macdougalii]*	Fremont cottonwood	Salicaceae
Prunus armeniaca	Apricot	Rosaceae
Prunus cerasifera	Cherry Plum	Rosaceae
Prunus domestica	Common plum	Rosaceae
Psoralea macrostachya	Psoralea	Fabaceae
Quercus douglasii	Blue oak	Fagaceae
Quercus lobata	Valley oak	Fagaceae
Quercus wislizenii var. *wislizenii [Q. wislizenusii* var. *w.]*	Interior live oak	Fagaceae
Raphanus sativus [2]	Wild radish	Brassicaceae
Rosa californica	California wild rose	Rosaceae
Rubus discolor [R. procerus] [2]	Himalaya berry	Rosaceae
Rumex crispus [2]	Curly dock	Polygonaceae
Salix sp.	Arroyo willow	Salicaceae

Vascular Plant Species Observed within the Alamo Creek Detention Basin Study Area
Field Visits Conducted in April, May, June, and October 2008

Scientific Name[1]	Common Name	Family
Salix laevigata [S. l. var. *araquipa]*	Red willow	Salicaceae
Salvia sp.	Sage	Lamiaceae
Sambucus mexicana [S. caerulea var. *m.]*	Blue elderberry	Caprifoliaceae
Scirpus microcarpus [S. m. vars. *longispicatus & rubrotinctus]*	Small-fruited bulrush	Cyperaceae
Scrophularia californica var. *californica*	California figwort	Scrophulariaceae
Senecio vulgaris [2]	Common groundsel	Asteraceae
Silybum marianum [2]	Milk thistle	Asteraceae
Sonchus oleraceus [2]	Common sow-thistle	Asteraceae
Sorghum halepense [2]	Johnson grass	Poaceae
Symphoricarpos sp.	Snowberry	Caprifoliaceae
Taeniatherum caput-medusae [Elymus caput-medusae, T. asperum] [2]	Medusa head	Poaceae
Torilis arvensis [T. japonica] [2]	Hedge-parsley	Apiaceae
Toxicodendron diversilobum [Rhus diversiloba]	Poison oak	Anacardiaceae
Tragopogon porrifolius [2]	Salsify, oyster plant	Asteraceae
Trifolium hirtum [2]	Rose clover	Fabaceae
Triticum aestivum [2]	Cultivated wheat	Poaceae
Umbellularia californica var. *californica*	California bay	Lauraceae
Vicia angustifolia var. *a. = V. sativa* ssp. *nigra*	Spring vetch, (sweet vetch)	Fabaceae
Vicia villosa ssp. *villosa* [2]	Hairy or winter vetch	Fabaceae
Vinca major [2]	Periwinkle	Apocynaceae
Vitis californica	California wild grape	Vitaceae
Vulpia myuros var. *myuros [Festuca m.]* [2]	Rattail fescue	Poaceae
Xanthium strumarium ssp. *canadense*	Cocklebur	Asteraceae

Notes: Table based on URS April, May, and June 2008 site visits (FEMA 2008) and AWE October 2008 site visit.

Synonyms in parentheses for scientific and common names are preferred.

[1] Scientific nomenclature follows Bailey and Bailey (1976) for ornamentals, Hickman (1993) for natives, Broich (1987) for Lathyrus, Gordon-Reedy (1990) for Leptodactylon, and Skinner and Pavlik (1994) for special-status species.

[2] Non-native taxa that have become naturalized or persist without cultivation.

Source: Federal Emergency Management Agency. 2008. Draft Federally Protected Plant Species Survey Letter Report for the Alamo Creek Detention Basin, Vacaville, California. (FEMA-1628-DR-CA and FEMA-1646-DR-CA, HMGP #1628-31-14.) Prepared by URS Group, Inc. (15299521.00200.) Oakland, CA.

Vascular Plant Species Found within the Ulatis Creek Detention Basin Study Area
Field Visits Conducted in October 2008 and April 2009

Scientific Name[1]	Common Name	Family
Acer negundo ssp. *californicum*	Box elder	Aceraceae
Aesculus californica	California buckeye	Hippocastanaceae
Amsinckia sp.	Fiddleneck	Boraginaceae
Aristolochia californica	California or Dutchman's pipevine	Aristolochiaceae
Artemisia douglasiana	Mugwort	Asteraceae
Arundo donax [2]	Giant reed	Poaceae
Avena sp. [2]	Wild oats	Poaceae
Azolla filiculoides	Mosquito fern, fern-like azolla	Azollaceae
Baccharis pilularis [B. p. sspp. *consanguinea & pilularis]*	Coyote brush	Asteraceae
Brassica rapa ssp. *syvestris [B. campestris]* [2]	Field mustard	Brassicaceae
Bromus diandrus [2]	Ripgut grass	Poaceae
Bromus hordeaceus [B. mollis, B. racemosus] [2]	Soft chess	Poaceae
Cardamine oligosperma	Few-seeded bitter-cress	Brassicaceae
Carex nudata	Torrent sedge	Cyperaceae
Centaurea solstitialis [2]	Yellow star-thistle	Asteraceae
Cichorium intybus [2]	Chicory	Asteraceae
Cirsium vulgare [C. lanceolatum] [2]	Bull thistle	Asteraceae
Conium maculatum [2]	Poison-hemlock	Apiaceae
Convolvulus arvensis [2]	Bind weed	Convolvulaceae
Conyza canadensis var. *canadensis*	Western horseweed	Asteraceae
Crypsis schoenoides [Heleochloa s.] [2]	Swamp timothy	Poaceae
Cynosurus echinatus [2]	Dogtail	Poaceae
Cyperus eragrostis	Umbrella-sedge	Cyperaceae
Elymus glaucus ssp. *glaucus*	Woodland or blue rye-grass	Poaceae
Equisetum arvense	Common horsetail	Equisetaceae
Euphorbia peplus	Petty spurge	Euphorbiaceae
Ficus carica [2]	Common fig	Moraceae
Foeniculum vulgare [2]	Sweet fennel	Apiaceae
Fraxinus latifolia [F. oregona]	Oregon ash	Oleaceae
Gnaphalium canescens ssp. *beneolens [G. b.]*	Fragrant cudweed	Asteraceae
Helenium puberulum	Rosilla, sneezeweed	Asteraceae
Helianthella californica var. *californica*	California helianthella	Asteraceae
Heteromeles arbutifolia [H. a. var. *macrocarpa]*	Toyon	Rosaceae
Hoita macrostachya [Psoralea m.]	Large leather root	Fabaceae
Hordeum murinum ssp. *leporinum [H. l.]* [2]	Hare barley	Poaceae
Juglans californica	California black walnut	Juglandaceae
Juglans regia	English walnut	Juglandaceae
Juncus effusus var. *exiguus*	Short rush	Juncaceae
Juncus patens	Spreading rush	Juncaceae
Kicksia elatine	Sharp-leaved fluellin	Scrophulariaceae
Lactuca serriola [2]	Prickly wild lettuce	Asteraceae

Vascular Plant Species Found within the Ulatis Creek Detention Basin Study Area
Field Visits Conducted in October 2008 and April 2009

Scientific Name[1]	Common Name	Family
Lolium multiflorum [L. m. varieties, *L. perenne* ssp. *m.]* [2]	Italian ryegrass	Poaceae
Lotus purshianus	Pursh's lotus	Fabaceae
Melilotus alba [2]	White sweetclover	Fabaceae
Mentha spicata [2]	Spearmint	Lamiaceae
Muhlenbergia filiformis	Pullup muhly	Poaceae
Muhlenbergia rigens	Deer grass	Poaceae
Phalaris minor	Lesser canary grass	Poaceae
Picris echioides [2]	Bristly ox-tongue	Asteraceae
Piptatherum miliaceum	Smilograss	Poaceae
Pistachia chinensis	Ornamental pistachio	Anacardiaceae
Plantago coronopus [P. c. ssp. *commutata]* [2]	Cutleaf plantain	Plantaginaceae
Plantago major [2]	Broadleaf plantain	Plantaginaceae
Poa annua var. *annua* [2]	Annual bluegrass	Poaceae
Polypogon monspeliensis [2]	Rabbitsfoot grass	Poaceae
Populus fremontii [P. f. ssp. *f.* vars. *arizonica & macdougalii]*	Fremont cottonwood	Salicaceae
Quercus lobata	Valley oak	Fagaceae
Raphanus sativus [2]	Wild radish	Brassicaceae
Rosa californica	California wild rose	Rosaceae
Rubus discolor [R. procerus] [2]	Himalaya berry	Rosaceae
Rubus ursinus [R. vitifolius, R. macropetalus.]	California blackberry	Rosaceae
Rumex crispus [2]	Curly dock	Polygonaceae
Salix laevigata [S. l. var. *araquipa]*	Red willow	Salicaceae
Salix lasiolepis	Arroyo willow	Salicaceae
Scirpus acutus var. *occidentalis*	Hard-stemmed tule	Cyperaceae
Sorghum halepense [2]	Johnson grass	Poaceae
Symphoricarpos albus var. *laevigatus [S. rivularis]*	White snowberry	Caprifoliaceae
Torilis arvensis [T. japonica] [2]	Hedge-parsley	Apiaceae
Toxicodendron diversilobum [Rhus diversiloba]	Poison oak	Anacardiaceae
Trifolium hirtum [2]	Rose clover	Fabaceae
Triticum aestivum [2]	Cultivated wheat	Poaceae
Umbellularia californica var. *californica*	California bay	Lauraceae
Vicia sp.	Vetch	Fabaceae
Vinca minor [2]	Small-flowered periwinkle	Apocynaceae
Vitis californica	California wild grape	Vitaceae
Xanthium strumarium ssp. *canadense*	Cocklebur	Asteraceae

Notes: Scientific nomenclature follows Bailey and Bailey (1976) for ornamentals, Hickman (1993) for natives, Broich (1987) for Lathyrus, Gordon-Reedy (1990) for Leptodactylon, and Skinner and Pavlik (1994) for special-status species. An * indicates non-native taxa that have become naturalized or persist without cultivation.

Common names follow Abrams and Ferris (1960), Bailey and Bailey (1976) for ornamentals, and Hickman (1993), Niehaus and Ripper (1976), and DeGarmo (1980) for natives.

[1] Scientific nomenclature follows Bailey and Bailey (1976) for ornamentals, Hickman (1993) for natives, Broich (1987) for Lathyrus, Gordon-Reedy (1990) for Leptodactylon, and Skinner and Pavlik (1994) for special-status species.

[2] Non-native taxa that have become naturalized or persist without cultivation.

List of Wildlife Observed during Field Surveys Conducted at the Alamo Site

Common Name	Scientific Name
Birds	
Acorn woodpecker	*Melanerpes formicivorus*
American kestrel	*Falco sparverius*
American robin	*Turdus migratorius*
Barn owl	*Tyto alba*
Bushtit	*Psaltriparus minimus*
Downy woodpecker	*Picoides pubescens*
House finch	*Carpodacus mexicanus*
Mourning dove	*Zenaida macroura*
Northern mockingbird	*Mimus polyglottos*
Spotted towhee	*Pipilo maculatus*
Turkey vulture	*Cathartes aura*
Western scrub jay	*Aphelocoma californica*
Wild turkey	*Meleagris gallopavo*
Invertebrate	
Crayfish	*Procambarus clarkii*
Amphibians	
Bullfrog	*Rana catesbeiana*
Pacific treefrog	*Pseudacris regilla*
Reptiles	
Western fence lizard	*Sceloporus occidentalis*
Fish	
California roach	*Hesperoleucus symmetricus*
Mesquitofish	*Gambusia affinis*
Threespine stickleback	*Gasterostreus aculeatus*
Mammals	
Black-tailed deer	*Odocoileus hemionus columbianus*
Black-tailed hare	*Lepus californicus*
Bobcat	*Lynx Rufus*
Raccoon	*Procyon lotor*
Skunk	*mephitis mephitis*

List of Wildlife Observed during Field Surveys Conducted at the Ulatis Site

Common Name	Scientific Name
Birds	
Acorn woodpecker	*Melanerpes formicivorus*
American robin	*Turdus migratorius*
Black phoebe	*Sayornis nigricans*
Bushtit	*Psaltriparus minimus*
Downy woodpecker	*Picoides pubescens*
House finch	*Carpodacus mexicanus*
Mourning dove	*Zenaida macroura*
Northern mockingbird	*Mimus polyglottos*
Red-tailed hawk	*Buteo jamaicensis*
Spotted towhee	*Pipilo maculatus*
Swainson's hawk	*Buteo swainsoni*
Turkey vulture	Cathartes aura
Western bluebird	*Sialia mexicana*
Western scrub jay	*Aphelocoma californica*
Western kingbird	*Tyrannus verticalis*
Wild turkey	*Meleagris gallopavo*
Invertebrate	
Crayfish	*Procambarus clarkii*
Amphibians	
Bullfrog	*Rana catesbeiana*
Pacific treefrog	*Pseudacris regilla*
Reptiles	
Western fence lizard	*Sceloporus occidentalis*
Western pond turtle	*Actinemys marmorata*
Western toad	*Bufo boreas*
Fish	
California roach	*Hesperoleucus symmetricus*
Green sunfish	*Lepomis cyanellus*
Mammals	
Black-tailed deer	*Odocoileus hemionus columbianus*
Beaver	*Castor canadensis*
Raccoon	*Procyon lotor*

APPENDIX G NOISE MODELING

TRAFFIC NOISE PREDICTION MODELING

PREDICTED TRAFFIC NOISE LEVEL WITHOUT DAYTIME LIMITATION

ALAMO CREEK DETENTION BASIN
TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
LDA/T	5.04	5.03	5.03
H-TRUCKS	28.03	28.03	28.03

ADT: 196 SPEED: 50 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 75 FT FROM NEAR TRAVEL LANE CENTERLINE = 65.06

ULATIS CREEK DETENTION BASIN
TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
LDA/T	4.64	4.64	4.64
H-TRUCKS	28.70	28.70	28.70

ADT: 220 SPEED: 50 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 75 FT FROM NEAR TRAVEL LANE CENTERLINE = 65.67

PREDICTED TRAFFIC NOISE LEVEL WITH DAYTIME LIMITATION

ALAMO CREEK DETENTION BASIN
TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
LDA/T	15.31	0.0	0.0
H-TRUCKS	84.69	0.0	0.0

ADT: 196 SPEED: 50 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 75 FT FROM NEAR TRAVEL LANE CENTERLINE = 58.4

ULATIS CREEK DETENTION BASIN
TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
LDA/T	13.9	0.0	0.0
H-TRUCKS	86.1	0.0	0.0

ADT: 220 SPEED: 50 ACTIVE HALF WIDTH (FT): 6
SITE CHARACTERISTICS: SOFT GRADE (PERCENT): .5
CNEL AT 75 FT FROM NEAR TRAVEL LANE CENTERLINE = 59.02