Appendix B
Biological Constraints Survey Memorandum

ESA

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memorandum

date	March 26, 2021
to	Natalia Gaerlan, PLA, LEED AP, Senior Project Manager, OC Parks - Planning & Design
cc	Scott Thomas, Manager, OC Parks – Planning & Design
from	Karla Flores, Senior Biologist
subject	Biological Constraints Survey Memorandum for the Crawford Canyon Park and Crawford Canyon Road Sidewalk Extension Project

This memorandum presents the findings of a biological constraints survey, conducted by Environmental Science Associates (ESA), for the Crawford Canyon Park (Park) and Crawford Canyon Road Sidewalk Extension (Sidewalk Extension) project (Project). The survey included a preliminary database review for the project location, followed by two site visits to document existing conditions and to identify potential biological constraints. The assessment to identify potential biological constraints included two separate surveys, one for the Park site and one for the Sidewalk Extension site. Each site was evaluated for the potential to support special-status plant and wildlife species, sensitive habitats, wildlife movement corridors, and waters regulated by the United Stated Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB) and California Department of Fish and Wildlife (CDFW).

Database Review

Prior to the onsite assessments, ESA conducted a query of the California Natural Diversity Database (CNDDB) and California Native Plant Society (CNPS) Online Rare Plant inventory for the Orange, California U.S. Geological Service 7.5-minute topographic quadrangle and the surrounding eight topographic quadrangles. The surrounding topographic quadrangles included in the query were: La Habra, Yorba Linda, Prado Dam, Anaheim, Black Star Canyon, Newport Beach, Tustin, and Lake Forest. The query was conducted to determine the potential for special-status plant and wildlife species to occur within the Park and the Sidewalk Extension sites, if suitable habitat for these species is present. Additionally, a brief review of the National Wetlands Inventory (NWI) and WebSoil Survey was conducted to determine the potential for hydric soils and wetland jurisdictional features to be present onsite. The CNDDB, CNPS, NWI and WebSoil query results are included as an attachment to this memo.

Site Assessment

ESA biologist Karla Flores conducted two site visits to evaluate the Crawford Canyon Park site on April 15, 2020 and the Crawford Canyon Sidewalk Extension site on November 12, 2020 the potential of the sites to support

special-status species, sensitive habitats, wildlife movement corridors, and waters regulated by the USACE, RWQCB and the CDFW. Weather conditions for each site visit are summarized in **Table 1**, **Weather Details for Crawford Canyon Park and Sidewalk Extension Site Assessment**. Each site was surveyed on foot by walking the perimeter of the footprint, and examining areas with dense vegetation. Binoculars were used to aid in the identification of bird and other wildlife species detected.

TABLE 1
WEATHER DETAILS FOR CRAWFORD CANYON PARK AND SIDEWALK EXTENSION SITE ASSESSMENT

Survey Location	Date	Temperature (ºF)		Wind (mph)		Clouds (%)	
		Start	End	Start	End	Start	End
Park site	4/15/2020	80º	83º	2.4	3.8	0	0
Sidewalk Extension site	11/12/2020	66º	74º	3.5	2	20	40

Vegetation and Wildlife

Crawford Canyon Park

Crawford Canyon Park is located at the northwest corner of Newport Avenue and South Crawford Canyon Road in North Tustin, Orange County, California. The Park site is surrounded by residential development on all sides and consists primarily of a disturbed dirt/gravel lot with scattered patches of native and non-native vegetation. Because the Park site is situated along a slope, there are signs of erosion (e.g. surface channels) caused by downhill water flow. In addition to shallow surface channels, there are also more prominent drainage features onsite, including an ephemeral swale that originates in the northeast corner of the site, and drains toward Newport Avenue, then drains into a shallow basin located on an adjacent property at the west end of the project site. The ephemeral swale is confined by artificial mounds created by the deposition of fill material. In addition, two shallow depressions with saturated soil were observed along the northern portion of the site.

Native plants observed onsite included: lemonade berry (*Rhus integrifolia*), laurel sumac (*Malosma laurina*), California buckwheat (*Eriogonum fasciculatum*), chilicothe (*Marah macrocarpa*), and California brittlebush (*Encelia californica*). In addition, scattered mulefat (*Baccharis salicifolia*) plants occur along the ephemeral swale, as well as isolated along the southern portion of the site, all in non-riparian areas. Non-native plants observed onsite included Mexican fan palm (*Washingtonia robusta*), Canary Island date palm (*Phoenix canariensis*), Peruvian pepper tree (*Schinus molle*), Brazilian pepper tree (*Schinus terebinthifolius*), tree tobacco (*Nicotiana glauca*), castor bean (*Ricinus communis*), Russian thistle (*Salsola tragus*), white horehound (*Marrubium vulgare*), common beggartick (*Bidens pilosa*), short-podded mustard (*Hirschfeldia incana*), marsh parsley (*Cyclospermum leptophyllum*), cheeseweed (*Malva parviflora*), common sow thistle (*Sonchus oleraceus*), London rocket (*Sisymbrium irio*), common groundsel (*Senecio vulgaris*), and red-stemmed filaree (*Erodium cicutarium*).

Avian species observed during the survey include house finch (*Haemorhous mexicanus*), Anna's hummingbird (*Calypte anna*), lesser goldfinch (*Spinus psaltria*), black phoebe (*Sayornis nigricans*) and American crow (*Corvus brachyrhynchos*). Other wildlife observed during the survey included California ground squirrel (*Otospermophilus beecheyi*) and side-blotched lizard (*Uta stansburiana*).

Sidewalk Extension Site

The Sidewalk Extension site extends from the intersection of South Crawford Canyon Road and Newport Avenue north toward the intersection of Crawford Canyon Road and Country Haven Lane (north side), and west from the South Crawford Canyon Road and Newport Avenue intersection to the Newport Avenue and Hyde Park Drive intersection (west side). The west side of the Sidewalk Extension site consists primarily of a paved sidewalk with ornamental/non-native trees and shrubs, and a concrete lined v-ditch that drains into a box culvert. Plant species on the west side of the Sidewalk Extension site include eucalyptus (*Eucalyptus* sp.), Peruvian pepper tree, castor bean, tree tobacco, carrotwood (*Cupaniopsis anacardioides*), Chinese elm (*Ulmus parvifolia* 'Drake'), variegated Pittosporum (*Pittosporum tobira* 'Variegata'), and weeping fig (*Ficus benjamina*). The north side of the Sidewalk Extension site consists of an uncurbed street (e.g. no sidewalk) with a concrete v-ditch that becomes a dirt erosion channel. The north side of the Sidewalk Extension site is dominated by non-native trees such as salt cedar (*Tamarix ramosissima*) and Mexican fan palm (*Washingtonia robusta*).

Avian species observed during the survey included house finch, lesser goldfinch, ruby-crowned kinglet (*Regulus calendula*), bushtit (*Psaltriparus minimus*), mourning dove (*Zenaida macroura*), American crow, California towhee (*Melozone crissalis)*, yellow rumped warbler (*Setophaga coronata*) and Anna's hummingbird.

Potential Constraints

Crawford Canyon Park

No special-status plants, wildlife species, or sensitive natural communities were observed during the site assessment at the Crawford Canyon Park site. However, the scattered patches of vegetation within the Park provide suitable habitat for nesting birds. In addition, the presence of Mexican fan palms may also provide suitable habitat for roosting bats. The surface channels and ephemeral swale traversing the site do not conform to the stream definition under the California Fish and Game Code, and are unlikely to be subject to CDFW jurisdiction. These areas are also unlikely to be subject to USACE or RWQCB jurisdiction.

Sidewalk Extension Site

No special-status plants, wildlife, or sensitive natural communities were observed at the Sidewalk Extension site during the site visit. Although the Sidewalk Extension site is primarily vegetated with ornamental and non-native tree and shrub species, native birds are known to nest in these trees. Bushtits and house finches (both observed during the site visit), are known to nest in Peruvian pepper trees. The ornamental trees present may provide similarly suitable nesting habitat. The concrete v-ditches that run along South Crawford Canyon Road and along Newport Avenue are not jurisdictional features and would not be subject to USACE and RWQCB regulation.

Recommendations and Conclusions

Crawford Canyon Park Site and Crawford Canyon Sidewalk Extension Site

Although the majority of the project site is disturbed, and was previously used by Orange County Public Works (OCPW) as a staging yard for vehicles and sediment deposition, there are areas of suitable habitat for birds and wildlife. The results of the biological constraints survey indicated that there are three biological constraints for this project: (1) presence of suitable nesting bird habitat, (2) presence of suitable roosting habitat for special-status bats, and (3) potential jurisdictional feature along the north and west portions of Sidewalk Extension site.

Birds

ESA recommends that project activities occur outside of the nesting bird season (February 1-September 1 for songbirds and January 1-September 1 for raptors). If work during the nesting bird season cannot be avoided, ESA recommends that a qualified biologist conduct a nesting bird survey prior to initiating construction activities. If active bird nests are present, a qualified biologist should be present onsite to monitor construction activities and to establish and maintain appropriate buffers around nests to minimize impacts to nesting birds until the biologist determines that the nest is no longer active. Smaller buffer areas around an active nest than may apply to native habitat areas may be recommended by the qualified monitoring biologist based on tolerance behavior of the nesting bird.

Bats

ESA also recommends that a qualified biologist should conduct a focused bat survey no less than 3 days, and no more than 7 days, prior to the initiation of construction activities. The survey would take place at an appropriate time of day to maximize detectability, usually just prior to sunset. Survey methods may include one, or a combination of, the following methods: visual surveys, inspection of suitable habitat for bat sign (e.g. guano, urine stains), or usage of ultrasonic acoustical bat detectors. If bats are detected onsite, the number and species of bats present should be determined. Project activities should avoid sensitive roosting periods and habitats for bats, including winter hibernation roosts, day roosts, and maternity colonies with nursing young. If bat roosts must be removed, bats should be passively excluded from the roost site prior to removal. A mitigation program addressing compensation and detailing exclusion methods and roost removal may need to be prepared and approved by CDFW prior to implementation.

Please feel free to contact me directly at (949) 753-1531, if I can be of any further assistance.

Karla L. Flores
Senior Biologist

Daryl Koutnik
Principal

Attachment 1: California Natural Diversity Database 9-Quadrangle Query
Attachment 2: California Native Plant Society Rare Plant Inventory 9-Quadrangle Query
Attachment 3: National Wetland Inventory
Attachment 4: WebSoil Survey Report
Attachment 5: Representative Photographs

References

California Department of Fish and Wildlife. California Natural Diversity Database Rarefind. Accessed April 17, 2020.

California Native Plant Society, Rare Plant Program. 2020. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 17 April 2020]

U.S. Fish and Wildlife Service National Wetlands Inventory. Accessed April 17, 2020.

United States Department of Agriculture, National Resources Conservation Service. Custom Soil Resource Report for Orange County and Part of Riverside County. California. Accessed April 17, 2020

Attachment 1

Crawford Canyon Park and Crawford Canyon Road Sidewalk Extension

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Orange (3311777) OR Black Star Canyon (3311776) OR El Toro (3311766) OR Tustin (3311767) OR Newport Beach (3311768) OR Anaheim (3311778) OR La Habra (3311788) OR Yorba Linda (3311787) OR Prado Dam (3311786))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Allen's pentachaeta *Pentachaeta aurea ssp. allenii*	PDAST6X021	None	None	G4T1	S1	1B.1
American badger *Taxidea taxus*	AMAJF04010	None	None	G5	S3	SSC
American peregrine falcon *Falco peregrinus anatum*	ABNKD06071	Delisted	Delisted	G4T4	S3S4	FP
aphanisma *Aphanisma blitoides*	PDCHE02010	None	None	G3G4	S2	1B.2
arroyo toad *Anaxyrus californicus*	AAABB01230	Endangered	None	G2G3	S2S3	SSC
bald eagle *Haliaeetus leucocephalus*	ABNKC10010	Delisted	Endangered	G5	S3	FP
bank swallow *Riparia riparia*	ABPAU08010	None	Threatened	G5	S2	
Belding's savannah sparrow *Passerculus sandwichensis beldingi*	ABPBX99015	None	Endangered	G5T3	S3	
big free-tailed bat *Nyctinomops macrotis*	AMACD04020	None	None	G5	S3	SSC
Braunton's milk-vetch *Astragalus brauntonii*	PDFAB0F1G0	Endangered	None	G2	S2	1B.1
burrowing owl *Athene cunicularia*	ABNSB10010	None	None	G4	S3	SSC
California beardtongue *Penstemon californicus*	PDSCR1L110	None	None	G3	S2	1B.2
California black rail *Laterallus jamaicensis coturniculus*	ABNME03041	None	Threatened	G3G4T1	S1	FP
California glossy snake *Arizona elegans occidentalis*	ARADB01017	None	None	G5T2	S2	SSC
California horned lark *Eremophila alpestris actia*	ABPAT02011	None	None	G5T4Q	S4	WL
California least tern *Sternula antillarum browni*	ABNNM08103	Endangered	Endangered	G4T2T3Q	S2	FP
California Orcutt grass *Orcuttia californica*	PMPOA4G010	Endangered	Endangered	G1	S1	1B.1
California Walnut Woodland *California Walnut Woodland*	CTT71210CA	None	None	G2	S2.1	
chaparral nolina *Nolina cismontana*	PMAGA080E0	None	None	G3	S3	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
chaparral ragwort *Senecio aphanactis*	PDAST8H060	None	None	G3	S2	2B.2
chaparral sand-verbena *Abronia villosa var. aurita*	PDNYC010P1	None	None	G5T2?	S2	1B.1
coast horned lizard *Phrynosoma blainvillii*	ARACF12100	None	None	G3G4	S3S4	SSC
coast patch-nosed snake *Salvadora hexalepis virgultea*	ARADB30033	None	None	G5T4	S2S3	SSC
Coast Range newt *Taricha torosa*	AAAAF02032	None	None	G4	S4	SSC
coast woolly-heads *Nemacaulis denudata var. denudata*	PDPGN0G011	None	None	G3G4T2	S2	1B.2
coastal cactus wren *Campylorhynchus brunneicapillus sandiegensis*	ABPBG02095	None	None	G5T3Q	S3	SSC
coastal California gnatcatcher *Polioptila californica californica*	ABPBJ08081	Threatened	None	G4G5T2Q	S2	SSC
coastal whiptail *Aspidoscelis tigris stejnegeri*	ARACJ02143	None	None	G5T5	S3	SSC
Cooper's hawk *Accipiter cooperii*	ABNKC12040	None	None	G5	S4	WL
Coulter's goldfields *Lasthenia glabrata ssp. coulteri*	PDAST5L0A1	None	None	G4T2	S2	1B.1
Coulter's saltbush *Atriplex coulteri*	PDCHE040E0	None	None	G3	S1S2	1B.2
Crotch bumble bee *Bombus crotchii*	IIHYM24480	None	Candidate Endangered	G3G4	S1S2	
Davidson's saltscale *Atriplex serenana var. davidsonii*	PDCHE041T1	None	None	G5T1	S1	1B.2
decumbent goldenbush *Isocoma menziesii var. decumbens*	PDAST57091	None	None	G3G5T2T3	S2	1B.2
estuary seablite *Suaeda esteroa*	PDCHE0P0D0	None	None	G3	S2	1B.2
ferruginous hawk *Buteo regalis*	ABNKC19120	None	None	G4	S3S4	WL
Gambel's water cress *Nasturtium gambelii*	PDBRA270V0	Endangered	Threatened	G1	S1	1B.1
globose dune beetle *Coelus globosus*	IICOL4A010	None	None	G1G2	S1S2	
golden eagle *Aquila chrysaetos*	ABNKC22010	None	None	G5	S3	FP
grasshopper sparrow *Ammodramus savannarum*	ABPBXA0020	None	None	G5	S3	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
great blue heron *Ardea herodias*	ABNGA04010	None	None	G5	S4	
heart-leaved pitcher sage *Lepechinia cardiophylla*	PDLAM0V020	None	None	G3	S2S3	1B.2
hoary bat *Lasiurus cinereus*	AMACC05030	None	None	G5	S4	
Horn's milk-vetch *Astragalus hornii var. hornii*	PDFAB0F421	None	None	GUT1	S1	1B.1
intermediate mariposa-lily *Calochortus weedii var. intermedius*	PMLIL0D1J1	None	None	G3G4T2	S2	1B.2
intermediate monardella *Monardella hypoleuca ssp. intermedia*	PDLAM180A4	None	None	G4T2?	S2?	1B.3
Jokerst's monardella *Monardella australis ssp. jokerstii*	PDLAM18112	None	None	G4T1?	S1?	1B.1
least Bell's vireo *Vireo bellii pusillus*	ABPBW01114	Endangered	Endangered	G5T2	S2	
light-footed Ridgway's rail *Rallus obsoletus levipes*	ABNME05014	Endangered	Endangered	G5T1T2	S1	FP
long-eared owl *Asio otus*	ABNSB13010	None	None	G5	S3?	SSC
long-spined spineflower *Chorizanthe polygonoides var. longispina*	PDPGN040K1	None	None	G5T3	S3	1B.2
Los Angeles sunflower *Helianthus nuttallii ssp. parishii*	PDAST4N102	None	None	G5TH	SH	1A
lucky morning-glory *Calystegia felix*	PDCON040P0	None	None	G1Q	S1	1B.1
Malibu baccharis *Baccharis malibuensis*	PDAST0W0W0	None	None	G1	S1	1B.1
many-stemmed dudleya *Dudleya multicaulis*	PDCRA040H0	None	None	G2	S2	1B.2
mesa horkelia *Horkelia cuneata var. puberula*	PDROS0W045	None	None	G4T1	S1	1B.1
Mexican long-tongued bat *Choeronycteris mexicana*	AMACB02010	None	None	G4	S1	SSC
mimic tryonia (=California brackishwater snail) *Tryonia imitator*	IMGASJ7040	None	None	G2	S2	
monarch - California overwintering population *Danaus plexippus pop. 1*	IILEPP2012	None	None	G4T2T3	S2S3	
mud nama *Nama stenocarpa*	PDHYD0A0H0	None	None	G4G5	S1S2	2B.2
northwestern San Diego pocket mouse *Chaetodipus fallax fallax*	AMAFD05031	None	None	G5T3T4	S3S4	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
orange-throated whiptail *Aspidoscelis hyperythra*	ARACJ02060	None	None	G5	S2S3	WL
osprey *Pandion haliaetus*	ABNKC01010	None	None	G5	S4	WL
Pacific pocket mouse *Perognathus longimembris pacificus*	AMAFD01042	Endangered	None	G5T1	S1	SSC
pallid bat *Antrozous pallidus*	AMACC10010	None	None	G5	S3	SSC
Parish's brittlescale *Atriplex parishii*	PDCHE041D0	None	None	G1G2	S1	1B.1
Plummer's mariposa-lily *Calochortus plummerae*	PMLIL0D150	None	None	G4	S4	4.2
pocketed free-tailed bat *Nyctinomops femorosaccus*	AMACD04010	None	None	G4	S3	SSC
prostrate vernal pool navarretia *Navarretia prostrata*	PDPLM0C0Q0	None	None	G2	S2	1B.2
quino checkerspot butterfly *Euphydryas editha quino*	IILEPK405L	Endangered	None	G5T1T2	S1S2	
red-diamond rattlesnake *Crotalus ruber*	ARADE02090	None	None	G4	S3	SSC
Riverside fairy shrimp *Streptocephalus woottoni*	ICBRA07010	Endangered	None	G1G2	S1S2	
Riversidian Alluvial Fan Sage Scrub *Riversidian Alluvial Fan Sage Scrub*	CTT32720CA	None	None	G1	S1.1	
Robinson's pepper-grass *Lepidium virginicum var. robinsonii*	PDBRA1M114	None	None	G5T3	S3	4.3
salt marsh bird's-beak *Chloropyron maritimum ssp. maritimum*	PDSCR0J0C2	Endangered	Endangered	G4?T1	S1	1B.2
salt spring checkerbloom *Sidalcea neomexicana*	PDMAL110J0	None	None	G4	S2	2B.2
San Bernardino aster *Symphyotrichum defoliatum*	PDASTE80C0	None	None	G2	S2	1B.2
San Diego button-celery *Eryngium aristulatum var. parishii*	PDAPI0Z042	Endangered	Endangered	G5T1	S1	1B.1
San Diego desert woodrat *Neotoma lepida intermedia*	AMAFF08041	None	None	G5T3T4	S3S4	SSC
San Diego fairy shrimp *Branchinecta sandiegonensis*	ICBRA03060	Endangered	None	G2	S2	
San Fernando Valley spineflower *Chorizanthe parryi var. fernandina*	PDPGN040J1	Proposed Threatened	Endangered	G2T1	S1	1B.1
sandy beach tiger beetle *Cicindela hirticollis gravida*	IICOL02101	None	None	G5T2	S2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Santa Ana River woollystar *Eriastrum densifolium ssp. sanctorum*	PDPLM03035	Endangered	Endangered	G4T1	S1	1B.1
Santa Ana speckled dace *Rhinichthys osculus ssp. 3*	AFCJB3705K	None	None	G5T1	S1	SSC
Santa Ana sucker *Catostomus santaanae*	AFCJC02190	Threatened	None	G1	S1	
smooth tarplant *Centromadia pungens ssp. laevis*	PDAST4R0R4	None	None	G3G4T2	S2	1B.1
south coast saltscale *Atriplex pacifica*	PDCHE041C0	None	None	G4	S2	1B.2
Southern California Arroyo Chub/Santa Ana Sucker Stream *Southern California Arroyo Chub/Santa Ana Sucker Stream*	CARE2330CA	None	None	GNR	SNR	
southern California legless lizard *Anniella stebbinsi*	ARACC01060	None	None	G3	S3	SSC
southern California rufous-crowned sparrow *Aimophila ruficeps canescens*	ABPBX91091	None	None	G5T3	S3	WL
southern California saltmarsh shrew *Sorex ornatus salicornicus*	AMABA01104	None	None	G5T1?	S1	SSC
Southern Coast Live Oak Riparian Forest *Southern Coast Live Oak Riparian Forest*	CTT61310CA	None	None	G4	S4	
Southern Coastal Salt Marsh *Southern Coastal Salt Marsh*	CTT52120CA	None	None	G2	S2.1	
Southern Cottonwood Willow Riparian Forest *Southern Cottonwood Willow Riparian Forest*	CTT61330CA	None	None	G3	S3.2	
Southern Dune Scrub *Southern Dune Scrub*	CTT21330CA	None	None	G1	S1.1	
Southern Foredunes *Southern Foredunes*	CTT21230CA	None	None	G2	S2.1	
southern grasshopper mouse *Onychomys torridus ramona*	AMAFF06022	None	None	G5T3	S3	SSC
Southern Interior Cypress Forest *Southern Interior Cypress Forest*	CTT83230CA	None	None	G2	S2.1	
Southern Riparian Scrub *Southern Riparian Scrub*	CTT63300CA	None	None	G3	S3.2	
Southern Sycamore Alder Riparian Woodland *Southern Sycamore Alder Riparian Woodland*	CTT62400CA	None	None	G4	S4	
southern tarplant *Centromadia parryi ssp. australis*	PDAST4R0P4	None	None	G3T2	S2	1B.1
Southern Willow Scrub *Southern Willow Scrub*	CTT63320CA	None	None	G3	S2.1	
southwestern willow flycatcher *Empidonax traillii extimus*	ABPAE33043	Endangered	Endangered	G5T2	S1	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
steelhead - southern California DPS *Oncorhynchus mykiss irideus pop. 10*	AFCHA0209J	Endangered	None	G5T1Q	S1	
Swainson's hawk *Buteo swainsoni*	ABNKC19070	None	Threatened	G5	S3	
Tecate cypress *Hesperocyparis forbesii*	PGCUP040C0	None	None	G2	S2	1B.1
thread-leaved brodiaea *Brodiaea filifolia*	PMLIL0C050	Threatened	Endangered	G2	S2	1B.1
tricolored blackbird *Agelaius tricolor*	ABPBXB0020	None	Threatened	G2G3	S1S2	SSC
two-striped gartersnake *Thamnophis hammondii*	ARADB36160	None	None	G4	S3S4	SSC
wandering (=saltmarsh) skipper *Panoquina errans*	IILEP84030	None	None	G4G5	S2	
western beach tiger beetle *Cicindela latesignata latesignata*	IICOL02113	None	None	G2G4T1T2	S1	
western mastiff bat *Eumops perotis californicus*	AMACD02011	None	None	G5T4	S3S4	SSC
western pond turtle *Emys marmorata*	ARAAD02030	None	None	G3G4	S3	SSC
western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened	None	G3T3	S2S3	SSC
western spadefoot *Spea hammondii*	AAABF02020	None	None	G3	S3	SSC
western tidal-flat tiger beetle *Cicindela gabbii*	IICOL02080	None	None	G2G4	S1	
western yellow-billed cuckoo *Coccyzus americanus occidentalis*	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
white rabbit-tobacco *Pseudognaphalium leucocephalum*	PDAST440C0	None	None	G4	S2	2B.2
white-tailed kite *Elanus leucurus*	ABNKC06010	None	None	G5	S3S4	FP
yellow rail *Coturnicops noveboracensis*	ABNME01010	None	None	G4	S1S2	SSC
yellow warbler *Setophaga petechia*	ABPBX03010	None	None	G5	S3S4	SSC
yellow-breasted chat *Icteria virens*	ABPBX24010	None	None	G5	S3	SSC
Yuma myotis *Myotis yumanensis*	AMACC01020	None	None	G5	S4	

Record Count: 123

Attachment 2

Crawford Canyon Park and Crawford Canyon Road Sidewalk Extension

CNPS California Native Plant Society

Inventory of Rare and Endangered Plants

*The database used to provide updates to the Online Inventory is under construction. View updates and changes made since May 2019 here.

Plant List

61 matches found. *Click on scientific name for details*

Search Criteria

Found in Quads 3311788, 3311787, 3311786, 3311778, 3311777, 3311776, 3311768 3311767 and 3311766;

Modify Search Criteria Export to Excel Modify Columns Modify Sort Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Abronia maritima	red sand-verbena	Nyctaginaceae	perennial herb	Feb-Nov	4.2	S3?	G4
Abronia villosa var. aurita	chaparral sand-verbena	Nyctaginaceae	annual herb	(Jan)Mar-Sep	1B.1	S2	G5T2?
Aphanisma blitoides	aphanisma	Chenopodiaceae	annual herb	Feb-Jun	1B.2	S2	G3G4
Astragalus brauntonii	Braunton's milk-vetch	Fabaceae	perennial herb	Jan-Aug	1B.1	S2	G2
Atriplex coulteri	Coulter's saltbush	Chenopodiaceae	perennial herb	Mar-Oct	1B.2	S1S2	G3
Atriplex pacifica	South Coast saltscale	Chenopodiaceae	annual herb	Mar-Oct	1B.2	S2	G4
Atriplex parishii	Parish's brittlescale	Chenopodiaceae	annual herb	Jun-Oct	1B.1	S1	G1G2
Atriplex serenana var. davidsonii	Davidson's saltscale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S1	G5T1
Baccharis malibuensis	Malibu baccharis	Asteraceae	perennial deciduous shrub	Aug	1B.1	S1	G1
Brodiaea filifolia	thread-leaved brodiaea	Themidaceae	perennial bulbiferous herb	Mar-Jun	1B.1	S2	G2
Calandrinia breweri	Brewer's calandrinia	Montiaceae	annual herb	(Jan)Mar-Jun	4.2	S4	G4
Calochortus catalinae	Catalina mariposa lily	Liliaceae	perennial bulbiferous herb	(Feb)Mar-Jun	4.2	S3S4	G3G4
Calochortus plummerae	Plummer's mariposa lily	Liliaceae	perennial bulbiferous herb	May-Jul	4.2	S4	G4
Calochortus weedii var. intermedius	intermediate mariposa lily	Liliaceae	perennial bulbiferous herb	May-Jul	1B.2	S2	G3G4T2
Calystegia felix	lucky morning-glory	Convolvulaceae	annual rhizomatous herb	Mar-Sep	1B.1	S1	G1Q

Camissoniopsis lewisii	Lewis' evening-primrose	Onagraceae	annual herb	Mar-May(Jun)	3	S4	G4
Centromadia parryi ssp. australis	southern tarplant	Asteraceae	annual herb	May-Nov	1B.1	S2	G3T2
Centromadia pungens ssp. laevis	smooth tarplant	Asteraceae	annual herb	Apr-Sep	1B.1	S2	G3G4T2
Chloropyron maritimum ssp. maritimum	salt marsh bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	May-Oct(Nov)	1B.2	S1	G4?T1
Chorizanthe parryi var. fernandina	San Fernando Valley spineflower	Polygonaceae	annual herb	Apr-Jul	1B.1	S1	G2T1
Chorizanthe polygonoides var. longispina	long-spined spineflower	Polygonaceae	annual herb	Apr-Jul	1B.2	S3	G5T3
Convolvulus simulans	small-flowered morning-glory	Convolvulaceae	annual herb	Mar-Jul	4.2	S4	G4
Deinandra paniculata	paniculate tarplant	Asteraceae	annual herb	(Mar)Apr-Nov(Dec)	4.2	S4	G4
Dodecahema leptoceras	slender-horned spineflower	Polygonaceae	annual herb	Apr-Jun	1B.1	S1	G1
Dudleya multicaulis	many-stemmed dudleya	Crassulaceae	perennial herb	Apr-Jul	1B.2	S2	G2
Dudleya stolonifera	Laguna Beach dudleya	Crassulaceae	perennial stoloniferous herb	May-Jul	1B.1	S1	G1
Eriastrum densifolium ssp. sanctorum	Santa Ana River woollystar	Polemoniaceae	perennial herb	Apr-Sep	1B.1	S1	G4T1
Eryngium aristulatum var. parishii	San Diego button-celery	Apiaceae	annual / perennial herb	Apr-Jun	1B.1	S1	G5T1
Harpagonella palmeri	Palmer's grapplinghook	Boraginaceae	annual herb	Mar-May	4.2	S3	G4
Helianthus nuttallii ssp. parishii	Los Angeles sunflower	Asteraceae	perennial rhizomatous herb	Aug-Oct	1A	SH	G5TH
Hesperocyparis forbesii	Tecate cypress	Cupressaceae	perennial evergreen tree		1B.1	S2	G2
Hordeum intercedens	vernal barley	Poaceae	annual herb	Mar-Jun	3.2	S3S4	G3G4
Horkelia cuneata var. puberula	mesa horkelia	Rosaceae	perennial herb	Feb-Jul(Sep)	1B.1	S1	G4T1
Juglans californica	Southern California black walnut	Juglandaceae	perennial deciduous tree	Mar-Aug	4.2	S4	G4
Juncus acutus ssp. leopoldii	southwestern spiny rush	Juncaceae	perennial rhizomatous herb	(Mar)May-Jun	4.2	S4	G5T5
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	Asteraceae	annual herb	Feb-Jun	1B.1	S2	G4T2
Lepechinia cardiophylla	heart-leaved pitcher sage	Lamiaceae	perennial shrub	Apr-Jul	1B.2	S2S3	G3
Lepidium virginicum var. robinsonii	Robinson's pepper-grass	Brassicaceae	annual herb	Jan-Jul	4.3	S3	G5T3
Lilium humboldtii ssp. ocellatum	ocellated Humboldt lily	Liliaceae	perennial bulbiferous herb	Mar-Jul(Aug)	4.2	S4?	G4T4?

Monardella australis ssp. jokerstii	Jokerst's monardella	Lamiaceae	perennial rhizomatous herb	Jul-Sep	1B.1	S1	G4T1
Monardella hypoleuca ssp. intermedia	intermediate monardella	Lamiaceae	perennial rhizomatous herb	Apr-Sep	1B.3	S2?	G4T2?
Nama stenocarpa	mud nama	Namaceae	annual / perennial herb	Jan-Jul	2B.2	S1S2	G4G5
Nasturtium gambelii	Gambel's water cress	Brassicaceae	perennial rhizomatous herb	Apr-Oct	1B.1	S1	G1
Navarretia prostrata	prostrate vernal pool navarretia	Polemoniaceae	annual herb	Apr-Jul	1B.1	S2	G2
Nemacaulis denudata var. denudata	coast woolly-heads	Polygonaceae	annual herb	Apr-Sep	1B.2	S2	G3G4T2
Nolina cismontana	chaparral nolina	Ruscaceae	perennial evergreen shrub	(Mar)May-Jul	1B.2	S3	G3
Orcuttia californica	California Orcutt grass	Poaceae	annual herb	Apr-Aug	1B.1	S1	G1
Penstemon californicus	California beardtongue	Plantaginaceae	perennial herb	May-Jun(Aug)	1B.2	S2	G3
Pentachaeta aurea ssp. allenii	Allen's pentachaeta	Asteraceae	annual herb	Mar-Jun	1B.1	S1	G4T1
Phacelia hubbyi	Hubby's phacelia	Hydrophyllaceae	annual herb	Apr-Jul	4.2	S4	G4
Phacelia ramosissima var. austrolitoralis	south coast branching phacelia	Hydrophyllaceae	perennial herb	Mar-Aug	3.2	S3	G5?T3Q
Pickeringia montana var. tomentosa	woolly chaparral-pea	Fabaceae	evergreen shrub	May-Aug	4.3	S3S4	G5T3T4
Polygala cornuta var. fishiae	Fish's milkwort	Polygalaceae	perennial deciduous shrub	May-Aug	4.3	S4	G5T4
Pseudognaphalium leucocephalum	white rabbit-tobacco	Asteraceae	perennial herb	(Jul)Aug-Nov(Dec)	2B.2	S2	G4
Quercus engelmannii	Engelmann oak	Fagaceae	perennial deciduous tree	Mar-Jun	4.2	S3	G3
Romneya coulteri	Coulter's matilija poppy	Papaveraceae	perennial rhizomatous herb	Mar-Jul(Aug)	4.2	S4	G4
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	1B.2	S3	G3
Senecio aphanactis	chaparral ragwort	Asteraceae	annual herb	Jan-Apr(May)	2B.2	S2	G3
Sidalcea neomexicana	salt spring checkerbloom	Malvaceae	perennial herb	Mar-Jun	2B.2	S2	G4
Suaeda esteroa	estuary seablite	Chenopodiaceae	perennial herb	(May)Jul-Oct(Jan)	1B.2	S2	G3
Symphyotrichum defoliatum	San Bernardino aster	Asteraceae	perennial rhizomatous herb	Jul-Nov(Dec)	1B.2	S2	G2

Suggested Citation

California Native Plant Society, Rare Plant Program. 2020. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 17 April 2020].

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The California Lichen Society

California Natural Diversity Database

The Jepson Flora Project

The Consortium of California Herbaria

CalPhotos

Questions and Comments

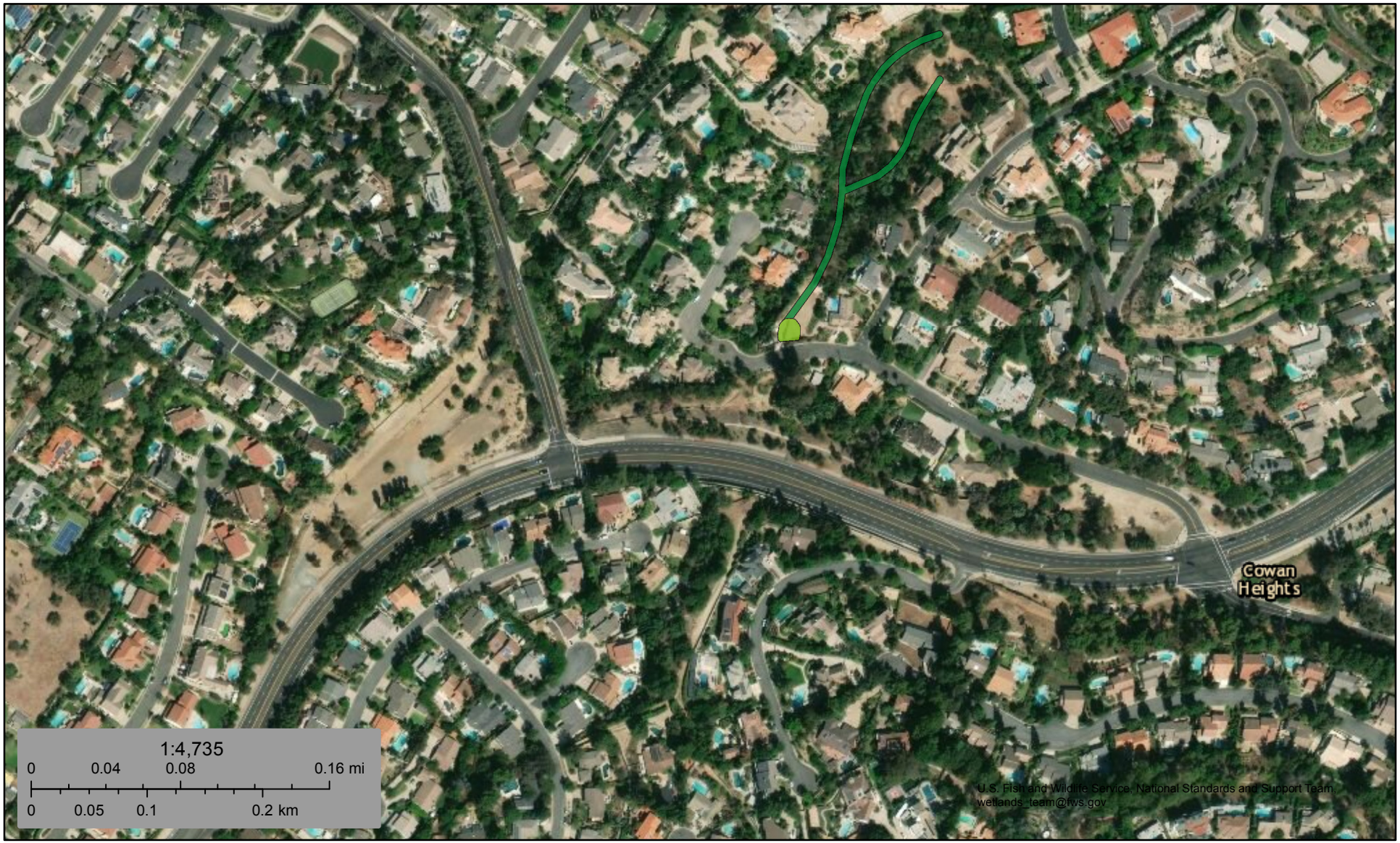
rareplants@cnps.org

Attachment 3

Crawford Canyon Park and Crawford Canyon Road Sidewalk Extension

U.S. Fish and Wildlife Service
National Wetlands Inventory

Crawford Canyon



April 17, 2020

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

Attachment 4

Crawford Canyon Park and Crawford Canyon Road Sidewalk Extension

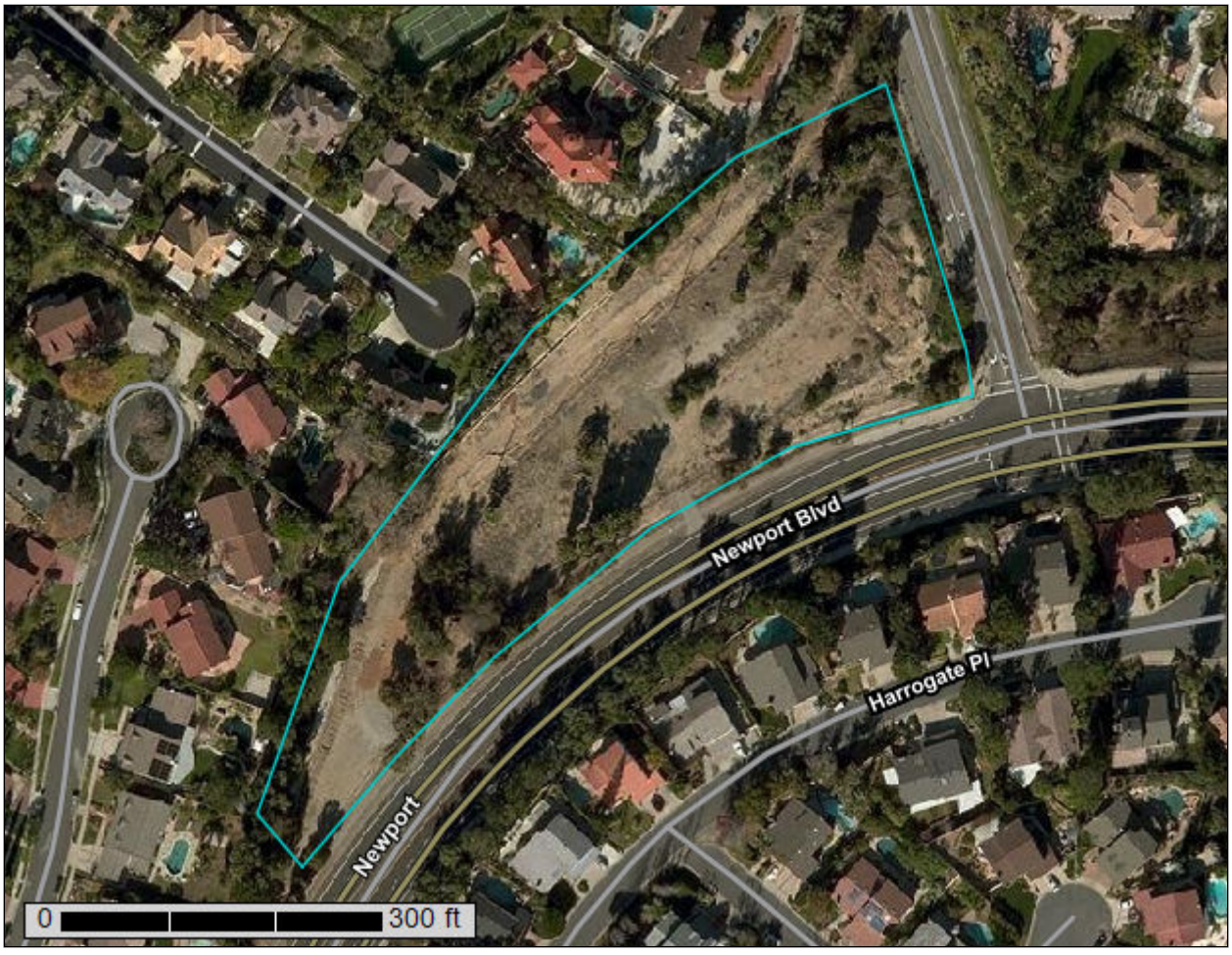
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Orange County and Part of Riverside County, California



April 17, 2020

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:1,580 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 20 40 80 120

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Orange County and Part of Riverside County, California
Survey Area Data: Version 13, Sep 16, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 3, 2015—Jan 17, 2015

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
149	Cropley clay, 2 to 9 percent slopes, warm MAAT, MLRA 19	0.1	2.5%
167	Mocho loam, 2 to 9 percent slopes, warm MAAT, MLRA 19	3.7	97.5%
Totals for Area of Interest		**3.8**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The

delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Orange County and Part of Riverside County, California

149—Cropley clay, 2 to 9 percent slopes, warm MAAT, MLRA 19

Map Unit Setting

National map unit symbol: 2tb9k
Elevation: 20 to 3,360 feet
Mean annual precipitation: 15 to 27 inches
Mean annual air temperature: 60 to 65 degrees F
Frost-free period: 270 to 365 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Cropley and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cropley

Setting

Landform: Alluvial fans, terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from calcareous shale

Typical profile

Ap - 0 to 3 inches: clay
A - 3 to 15 inches: clay
Bss1 - 15 to 29 inches: clay
Bss2 - 29 to 38 inches: clay
BCk1 - 38 to 49 inches: clay
BCk2 - 49 to 79 inches: clay

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Available water storage in profile: Moderate (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: Coastal Terrace 14-16" p.z. (R020XD047CA), CLAYEY (1975) (R019XD001CA)
Hydric soil rating: No

Minor Components

Salinas

Percent of map unit: 4 percent
Landform: Alluvial fans
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Rincon

Percent of map unit: 4 percent
Landform: Terraces, alluvial fans
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Botella

Percent of map unit: 2 percent
Landform: Low hills
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

167—Mocho loam, 2 to 9 percent slopes, warm MAAT, MLRA 19

Map Unit Setting

National map unit symbol: 2tyz1
Elevation: 10 to 2,240 feet
Mean annual precipitation: 14 to 21 inches
Mean annual air temperature: 61 to 65 degrees F
Frost-free period: 200 to 350 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Mocho and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Mocho

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Typical profile

H1 - 0 to 16 inches: loam
H2 - 16 to 60 inches: loam

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: LOAMY (1975) (R019XD029CA)
Hydric soil rating: No

Minor Components

Sorrento

Percent of map unit: 4 percent
Hydric soil rating: No

Anacapa

Percent of map unit: 3 percent
Hydric soil rating: No

Pico

Percent of map unit: 3 percent
Hydric soil rating: No

Garretson

Percent of map unit: 2 percent
Hydric soil rating: No

Botella, loam

Percent of map unit: 1 percent
Hydric soil rating: No

Mocho, sandy loam

Percent of map unit: 1 percent
Hydric soil rating: No

Mocho, 0 to 2 percent slopes

Percent of map unit: 1 percent
Hydric soil rating: No

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Attachment 5

Crawford Canyon Park and Crawford Canyon Road Sidewalk Extension

Photo 1: Overview of Crawford Canyon Park facing southwest.

Photo 2: Overview of Crawford Canyon Park facing northeast.

Photo 3: Mexican fan palm clusters that may provide roosting habitat for bats.

Photo 4: Surface channel caused by erosion during downhill water flow.

Photo 5: Mexican fan palms and surface depression where water can pool after rain events.

Photo 6: Concrete lined v-ditch along Newport Avenue.

Photo 7: Concrete lined v-ditch drains into box culvert along Newport Avenue.

Photo 8: Concrete lined v-ditch north of Crawford Canyon Park.

Photo 9: Basin at the southwest corner of Crawford Canyon Park.

Photo 10: Salt cedar cluster along south Crawford Canyon Road.

Photo 11: Concrete lined-v-ditch drains into box culvert along south Crawford Canyon Road.

Photo 12 a-b. Concrete lined v-ditch ends and becomes a surface channel near Pine Canyon road and south Crawford Canyon Road.

Photo 13: Eroded surface channel disappears near south Crawford Canyon Road and Country Haven Lane.