

October 26, 2010

Alan Solomon
Project Manager
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

RE: **Palen Solar Power Project, Docket No. 09-AFC-7 – Fall Botanical Surveys**
Resource Area: Biology

Dear Mr. Solomon:

Please find attached the Fall Botanical Surveys for the Palen Solar Power Project.

If you have any questions regarding this submittal, please feel free to contact me directly.

Sincerely,



Alice Harron
Senior Director, Development

DOCKET 09-AFC-7

DATE	<u>OCT 26 2010</u>
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RECD.	<u>OCT 26 2010</u>
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Memorandum

To	Michael Cressner, Solar Millennium	Page 1
CC	Alice Harron, Solar Millennium; Scott Galati, Galati & Blek, LLP; Mark Luttrell, AECOM; Arrie Bachrach, AECOM	
Subject	Palen Solar Power Project – Fall Botanical Surveys	
From	Bill Graham	
Date	October 26, 2010	

On September 17, 2010, AECOM botanists Scott McMillan and Kyle Harper conducted a reconnaissance-level survey of the Palen Solar Power Project (PSPP) disturbance area to evaluate for germination of late-season annual plant species. No evidence of native or nonnative annual plant germination was detected during this survey.

On October 2, 2010 and October 3, 2010, approximately 0.52 to 1.01 inches of precipitation was recorded in the vicinity of the PSPP Biological Resources Survey Area (BRSA), which includes the disturbance area and surrounding 1-mile buffer.¹ Based on this rainfall, AECOM botanists Kyle Harper, Lance Woolley, and Rey Pellos conducted complete late-season botanical surveys within the PSPP BRSA on October 11, 2010 through October 15, 2010.

No special status plant species were detected on the PSPP BRSA during October 2010 botanical surveys, although summer/fall annual plant species were detected in bloom and/or fruit within and in the vicinity of the PSPP BRSA. Detailed survey methods and results are presented in the sections below.

1.0 Survey Preparation and Methods

1.1 Precipitation

Rainfall in the vicinity of the PSPP BRSA has been below average this summer, totaling 0.58 to 1.07 inches to date (the June through October average is 1.41 to 1.56 inches).² However, special status plant species were detected at nearby reference populations and several species of common summer annuals (e.g., chinch weed [*Pectis papposa* var. *papposa*]) were detected within the PSPP BRSA.

¹ Western Regional Climate Center 2010 for Eagle Mountain and Desert Center (higher of the two measured rainfall totals used to be conservative). Weather station names: Eagle Mountain, California (042598) and Desert Ctr 2 NNE (042410) (WRCC 2010).

² *Ibid.*

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1.2 Reference Population Documentation

AECOM botanists visited several reference populations for late-season special status plant species as a component of the late-season botanical survey, to check the phenology and confirm identification of the target species. The results of these visits are provided in Table 1, and photographs of observed special status plant species are presented in Attachment 1. All observations of late-season special status plant species occurred outside the PSPP BRSA.

**Table 1
 Reference Population Visits for Late-Season Special Status Plant Species**

Species	Reference Population Accession Number, Coordinates, and Location ^a	Result
Abram's spurge	UCR163393 33.605, -114.979 Ford Dry Lake, south side of Interstate 10.	Visited October 11, 2010. Not observed. No annual germination was observed. Habitat in this area is similar to the PSPP BRSA.
<i>Chamaesyce</i> [<i>Euphorbia</i>] <i>abramsiana</i>	N/A 32.669, -115.891 South of Highway 98, inside the BLM crucifixion thorn sanctuary.	This reference population is anecdotally known by Fred Sproul of AECOM. Visited October 11, 2010. Species not observed. No annual germination was observed. Habitat in this area is similar to the PSPP BRSA.
pink velvet mallow <i>Horsfordia alata</i>	UCR37429 32.94, -114.87 Sonoran Desert, 10.9 miles south of Highway 78 on Ogilby Road.	Visited October 11, 2010. Not observed. This area was very dry and no blooming was observed.
Newberry's velvet mallow <i>Horsfordia newberryi</i>	UCR89839 33.06, -114.76 Chocolate Mountains, in Julian Wash.	Visited October 11, 2010. Not observed. It was not feasible to reach this reference site due to difficult terrain. AECOM botanists reached within 5 miles of this reference population, and observed another species in the Malvaceae, <i>Hibiscus denudatus</i> , which was green and fruiting.

Species	Reference Population Accession Number, Coordinates, and Location ^a	Result
lobed ground-cherry <i>Physalis lobata</i>	UCR45973 34.066, -115.533 Southeast of Highway 62 in the Clark's Pass area.	Visited October 13, 2010. Not observed. No germination or blooming was observed in this area. Habitat in this area is similar to the PSPP BRSA.
desert portulaca <i>Portulaca halimoides</i>	UCR188151 34.016, -116.162 Joshua Tree National Park, Hidden Valley Campground.	Visited October 13, 2010. Possibly observed as cotyledon. The annual plant species were immature in this area. No similar habitat is present within the PSPP BRSA.
Palmer's jackass clover <i>Wislizenia refracta ssp. palmeri</i>	UCR25791 33.786, -115.234 Northeast of Desert Center, along the northeastern boundary of the PSPP BRSA.	Visited October 11, 2010. Not observed. No germination was observed in this area, although Parry's false prairie clover (<i>Marina parryi</i>) was observed in bloom.
	UCR42420 33.708, -115.170 Palen Sand Dunes, near the BLM desert lily sanctuary.	Visited October 12, 2010. Observed in bloom. Photos in Attachment 1. This alkaline area is similar to portions of the northeastern PSPP BRSA, although the weed cover here was observed to be lower than on the PSPP BRSA.
jackass clover <i>Wislizenia refracta ssp. refracta</i>	RSA620353 34.129, -116.051 Twentynine Palms, on Cottonwood Drive.	Visited October 13, 2010. Observed in bloom. Photos in Attachment 1. This area is disturbed habitat, so it is not possible to rule out the PSPP BRSA as potentially suitable habitat. However, the species would have been highly detectable if present.

^a Reference Populations researched using the California Consortium of Herbaria (CCH 2010).

1.3 Methods

AECOM conducted late-season botanical surveys of the entire PSPP BRSA, including disturbance areas, linear corridors, substation areas, and all related buffer areas for both Reconfigured Alternatives 2 and 3 as well as the Proposed Project. Surveys were intuitive controlled per Whiteaker (1998), with additional details provided below.

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The following eight special status plant species have been targeted by AECOM for fall botanical surveys at PSPP: Abram's spurge (*Chamaesyce abramsiana*), flat-seeded spurge (*Chamaesyce platysperma*), glandular ditaxis (*Ditaxis claryana*), pink velvet mallow (*Horsfordia alata*), lobed ground cherry (*Physalis lobata*), California ditaxis (*Ditaxis serrata* var. *californica*), jackass clover (*Wislizenia refracta* ssp. *refracta*), and Palmer's jackass clover (*Wislizenia refracta* ssp. *palmeri*). This list includes all species considered by AECOM, the Bureau of Land Management (BLM), the California Energy Commission (CEC), and other regional botanical experts (Andrew Sanders and James Andre of the University of California, Riverside) as having some potential to occur on site.

Preliminary site reconnaissance was conducted to monitor germination and calibrate survey timing. AECOM botanists monitored precipitation at the Desert Center and Eagle Mountain weather stations, and initiated the first site reconnaissance visit three weeks after measurable precipitation occurred. Full surveys were initiated once precipitation was observed to exceed 0.25 inch. This amount could have occurred in a single storm event, or over multiple storm events.

Once fall germination was detected during initial reconnaissance field visits to the PSPP BRSA, fall botanical surveys began within one week of positive field reconnaissance findings (i.e., germination and bloom), and concluded within two weeks of the official survey start.

The summer/fall blooming season in the Colorado Desert is highly dependent on a bimodal pattern of annual rainfall, where a large percentage of annual precipitation occurs in the summer months (i.e., July through September). Because the PSPP BRSA is on the western edge of the Sonoran Desert, the site experiences a marginally bimodal rainfall pattern but does not exhibit the degree of monsoonal summer rains that occur to the east in Arizona. However, the monsoonal influence is strong enough at the PSPP BRSA to allow for late-season germination of summer annual plant species. Many of these species are special status and data are lacking for these species with respect to habitat, distribution, and environmental triggers for germination. Within the context of unspecified habitat descriptions, a very large survey area, and a potentially ephemeral blooming period (which could be as short as one to two weeks), AECOM developed additional survey methods to ensure adequate site coverage in a potentially variable germination scenario:

- Level One: Botanists walked wide, 500-meter east-west transects (plus a single pass along linear features) to determine where germination occurred.
- Level Two: Botanists walked tighter transects (50-100 meter) in areas of confirmed late-season germination.
- Level Three: If a special status plant species was found, botanists walked very tight transects (10 meters) within a 100-meter buffer surrounding the occurrence, to ensure the full extent of the occurrence was delineated. If more was found, the procedure would have been repeated to fully delineate the occupied area. If a species was observed as blanketing an area greater than 100 square feet in size, polygons would have been used to delineate these regions in the field. Otherwise,

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point data would have been used to map the distribution (along with each point, data would have been collected including plant count and occurrence radius).

If late-season special status plants were documented during Level Three surveys, California Natural Diversity Database (CNDDDB) forms would be completed for each occurrence. Also, "occupied habitat" polygons would be constructed by using field-delineated polygons and/or buffering the point data by the field-collected radius. This would allow GIS to have a concrete area for calculating impacts and mitigation to late-season special status plant species, to be fully compliant with mitigation measure BIO-19.

2.0 Survey Results

No special status plant species were observed within the PSPP BRSA during late-season botanical surveys. Eight non-special-status annual species were observed in bloom and/or fruit, and 17 non-special-status perennial species were observed in bloom and/or fruit. Among these, 8 previously undocumented non-special-status species were added to the PSPP floral inventory. Representative photographs are provided as Attachment 1. Scanned field data sheets are provided as Attachment 2. The revised floral inventory for the PSPP BRSA is provided as Attachment 3.

From a botanical perspective, most of the PSPP BRSA was dormant with the exception of portions of the dune habitat on the eastern side of the PSPP BRSA. Botanists walked the entire site using Level One transects to discern zones of germination. These areas were then revisited for Level Two transects. A map depicting survey transects walked or driven is provided as Attachment 4.

No additional botanical surveys are planned for the PSPP BRSA, since local precipitation was adequate to initiate germination of summer/fall annuals. Because no special-status plant species were found in the PSPP BRSA, a Special-Status Plant Mitigation Plan will not be prepared.

Should you have any questions regarding this memo, please contact me at (619) 233-1454.

Sincerely,



William Graham
Vice President, AECOM

Attachments: 1 Representative Photographs
2 Scanned Field Data Sheets
3 Revised Floral Inventory
4 Survey Tracklog

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References:

California Consortium of Herbaria (CCH). 2010. Online database of herbaria voucher specimens within California. Available at <http://ucjeps.berkeley.edu/consortium/>. Accessed October 7, 2010.

Western Regional Climate Center (WRCC). 2010. Eagle Mountain, California (042598) and Desert Ctr 2 NNE (042410). Available at <http://www.wrcc.dri.edu/coopmap/>. Accessed: October 21, 2010.

Whiteaker, L., J. Henderson, R. Holmes, L. Hoover, R. Leshner, J. Lippert, E. Olson, L. Potash, J. Seevers, M. Stein, and N. Wogen. 1998. Survey Protocols for Survey and Manage Strategy 2: Vascular Plants. Available at <http://www.blm.gov/or/plans/surveyandmanage/SP/VascularPlants/cover.htm>.

REPRESENTATIVE PHOTOGRAPHS

REPRESENTATIVE PHOTOGRAPHS

Palen Solar Power Project
September 17, 2010
and
October 12, 2010 through October 15, 2010
Botanical Surveys for Late-Season Annual Germination



Photo 1. Looking north, in the southeastern portion of the Biological Resources Survey Area (BRSA). This is one of the areas where localized annual germination was observed, necessitating Level Two transects. Pictured are chinch weed (*Pectis papposa* var. *papposa*), jimson weed (*Datura discolor*), California caltrop (*Kallstroemia californica*), Saharan mustard (*Brassica tournefortii*), and Sonoran sandmat (*Chamaesyce micromera*). Photo taken October 15, 2010, by Kyle Harper.



Photo 2. Looking southeast, in the southern portion of the Biological Resources Survey Area (BRSA). Within the dry desert wash woodland associated with Corn Springs Wash, the tree species are green and fruiting but the herbaceous understory is depauperate. Photo taken September 17, 2010, by Kyle Harper. Conditions were observed to be similar in this area during the October survey.



Photo 3. Looking north, near the center of the Biological Resources Survey Area (BRSA). No late-season annual germination was observed (native or nonnative). The only plant species still green is creosote (*Larrea tridentata*). Photo taken September 17, 2010, by Kyle Harper. Conditions were observed to be similar in this area during the October survey.



Photo 4. Northwest of the Biological Resources Survey Area (BRSA), near the Bureau of Land Management Desert Lily Sanctuary. Palmer's jackass-clover (*Wislizenia refracta* ssp. *palmeri*) in full bloom. Reference population accession number: **UCR42420**. Photo taken October 12, 2010, by Lance Woolley.



Photo 5. Closeup of Palmer's jackass-clover, at the same location as Photo 4. Photo taken October 12, 2010, by Lance Woolley.



Photo 6. Northwest of the Biological Resources Survey Area (BRSA), in Twentynine Palms. jackass-clover (*Wislizenia refracta* ssp. *refracta*) in full bloom. Reference population accession number: **RSA620353**. Photo taken October 13, 2010, by Lance Woolley.



Photo 7. Closeup of jackass-clover, at the same location as Photo 6. Photo taken October 13, 2010, by Lance Woolley.

SCANNED FIELD DATA SHEETS

FIELD JOURNAL

Job Name FALLEN FALL BOTANICAL Job # 09080081.49
 Observer KYLE HARPER Add'l Persons LANCE WOOLEY, RAY KELLY
 Date 10/12/2010 - 10/15/2010 Start Time End Time
 Location
 Habitat Description

Purpose of Visit
 Start Weather: Temp Wind Sp/Dir From %Clds Pcp

Describe Surrounding Land Uses and Discuss Wildlife Movement Corridors and Habitat Linkages.

Obs. No.	Time	Notes
10/12/2010 SNAKE KH		BABY, BANDED SNAKE (LT YELLOW - GREEN + BLACK) 8" LONG 1cm DIA. DISAPPEARED INTO BURROW. NO PHOTO.
PHOTO KH PHOTO KH		NESW. NO GERMINATION. AT ECOTONE CBS/DUNES/LAKE BED ALONG ALKALI FLAT (PHOTOS 5-8 PERSONAL)
POND KH		7'x15' + SHALLOW BASIN TO N. NO WATER, LOOKS TO HAVE HAD PONDING SEVERAL IN. DEEP. 2-6". NO WILDLIFE OBS.
UNK KH		w/0 SMALL DRIED FLWS. RECENT GERMINATION. ↳ FACTS PAPEROSA
CHAB? KH		ANNUAL CHAMAESYCE SP. JUST ONE PLANT ↳ C. MICROMERA
CHAB? KH		3 > PL. DOZENS MORE ALONG TRANSIT ↳ ALSO C. MICROMERA
CHAB? KH		4 PL. w/ FACTS PAPEROSA ↳ ALSO C. MICROMERA
CHAB? KH		100S (~500) PL IN SANDY DUNES. NO MORE TO WEST ↳ ALSO C. MICROMERA
PAAR KH		PARATONIA OUT OF PLACE - THE ONLY GREEN THING! MORE C. MICROMERA HERE
POHA KH		PORTULACA HALIMIFOLIA? ABUNDANT, ~10,000. ↳ TRIANTHEMA PORTULACASTRUM
POHA KH		END OF PORTULACA
UNK KH		COLLECTED SPHERICAL FRUIT ↳ STILINGIA SPINULOSA

Current Weather: Temp Wind Sp/Dir From %Clds Pcp

KYLE HARPER
 10/17/2009 - 10/15/2010
 GARMIN SM9

Floral Species Observed

Note: the "Status" column in this table denotes both special status and nonnative plant species. Special status plant species are indicated by the appropriate California Native Plant Society (CNPS) Listing Status and are shown in bold text. Nonnative plant species are indicated wherever "*nonnative" appears in the Status column. A blank Status field corresponds to a native plant species with no special status.

Status	Scientific Name	Common Name	1	2	3	4	5	6	7	8	9	10
Monocots												
Liliaceae - Lily Family												
	<i>Hesperocallis undulata</i>	desert lily										
Poaceae - Grass Family												
nonnative	<i>Festuca sp.</i>	fescue										
nonnative	<i>Phalaris minor</i>	little-seed Canary grass										
	<i>Pleuraphis rigida</i>	big galleta grass	F	F			F					
nonnative	<i>Schismus arabicus</i>	Mediterranean grass		F			F					
	<i>Vulpia octoflora</i>	sixweeks fescue										
Eudicots												
Aizoaceae - Fig-Marigold Family												
	<i>Sesuvium verrucosum</i>	western sea-purslane	B									
Amaranthaceae - Amaranth Family												
	<i>Tidestromia oblongifolia</i>	Arizona honeysweet		F			F					
Asclepiadaceae - Milkweed Family												
CNPS 4.3	<i>Cynanchum utahense</i> (observed outside, but adjacent to the Combined Survey Area.)	climbing milkweed										
	<i>Sarcostemma cynanchoides</i> ssp. <i>hartwegii</i>	climbing milkweed										
Asteraceae - Sunflower Family												
	<i>Ambrosia dumosa</i>	burweed , white bursage	F	F	F	F						
	<i>Atrichoseris platyphylla</i>	parachute plant , gravel ghost										
	<i>Baileya pauciradiata</i>	desert-marigold										
	<i>Baileya pleniradiata</i>	woolly desert-marigold										
	<i>Bebbia juncea</i> var. <i>aspera</i>	rush sweetbush										
	<i>Calycoseris wrightii</i>	white tackstem										
	<i>Chaenactis carphoclinia</i>	pebble pincushion										
	<i>Chaenactis fremontii</i>	desert pincushion										
	<i>Chaenactis stevioides</i>	desert pincushion										
	<i>Dicoria canescens</i>	dicoria										
	<i>Encelia farinose</i>	brittlebush, incienso										
	<i>Encelia frutescens</i>	button brittlebush										
	<i>Geraea canescens</i>	desert-sunflower										

NEW PECTIS PAPPOSA
 NEW ASCLEPIAS EROSA
 NEW TRICANTHEMA PORTULACASTRUM
 NEW BOUTELOUA BARBATA BARBATA

B	B	B			
B					
F	F	F			
		F			

Status	Scientific Name	Common Name	05	12	13	15	15
	<i>Hymenoclea salsola</i>	cheesebush	V				
	<i>Isocoma acradenia</i>	alkali goldenbush					
	<i>Malacothrix glabrata</i>	desert dandelion					
	<i>Monoptilon bellioides</i>	Mojave desertstar					
	<i>Palafoxia arida</i> var. <i>arida</i>	Spanish needle	B	B	B	B	
	<i>Perityle emoryi</i>	Emory's rockdaisy					
	<i>Psathyrotes ramosissima</i>	turtleback				B	
	<i>Rafinesquia neomexicana</i>	desert chicory					
	<i>Stephanomeria pauciflora</i> var. <i>pauciflora</i>	wire lettuce					
	<i>Stylocline gnaphaloides</i>	nest straw					
	<i>Trichoptilum incisum</i>	yellowhead, yellowdome					
Boraginaceae - Borage Family							
	<i>Amsinckia menziesii</i> var. <i>menziesii</i>	rancher's fireweed					
	<i>Amsinckia tessellata</i>	devil's lettuce					
	<i>Cryptantha angustifolia</i>	narrow leaved cryptantha					
	<i>Cryptantha barbigerata</i>	bearded cryptantha					
	<i>Cryptantha costata</i>	ribbed cryptantha					
	<i>Cryptantha maritime</i>	Guadalupe cryptantha					
	<i>Cryptantha micrantha</i>	redroot cryptantha					
	<i>Cryptantha nevadensis</i>	Nevada cryptantha					
	<i>Cryptantha pterocarya</i> var. <i>cycloptera</i>	wingnut cryptantha					
	<i>Heliotropium convolvulaceum</i> var. <i>convolvulaceum</i>	bindweed heliotrope					
	<i>Pectocarya heterocarpa</i>	combseed					
	<i>Pectocarya platycarpa</i>	broadfruit combseed					
	<i>Tiquilia plicata</i>	fanleaf crinkleemat, plicate coldenia	V				
Brassicaceae - Mustard Family							
	<i>Brassica tournefortii</i> *	Saharan mustard, Sahara mustard				V	
	<i>Dithyrea californica</i>	spectacle-pod					
	<i>Guillenia lasiophyllum</i>	California mustard					
	<i>Lepidium lasiocarpum</i>	pepperweed					
*nonnative	<i>Sisymbrium irio</i> *	London rocket					
	<i>Streptanthella longirostris</i>	streptanthella					
Cactaceae - Cactus Family							
	<i>Echinocactus polycephalus</i> var. <i>polycephalus</i>	cottontop cactus					
	<i>Echinocereus engelmannii</i>	hedgehog cactus					
	<i>Ferocactus cylindraceus</i> var. <i>cylindraceus</i>	California barrel cactus					
	<i>Mammillaria tetrancistra</i>	common fishhook cactus					
	<i>Opuntia bigelovii</i>	teddybear cholla					
	<i>Opuntia echinocarpa</i>	silver cholla, golden cholla					

Status	Scientific Name	Common Name						
	<i>Opuntia ramosissima</i>	pencil cactus, diamond cholla	V					
Campanulaceae - Bellflower Family								
	<i>Nemacladus glanduliferus</i> var. <i>glanduliferus</i>	glandular threadplant						
Caryophyllaceae - Pink Family								
	<i>Achyronychia cooperi</i>	onyx flower						
Chenopodiaceae - Goosefoot Family								
	<i>Atriplex canescens</i>	fourwing saltbush						
	<i>Atriplex canescens</i> ssp. <i>nuevo</i>	Saltbush						
	<i>Atriplex polycarpa</i>	allscale saltbrush	V			F		
	<i>Monolepis nuttalliana</i>	poverty weed						
*nonnative	<i>Salsola tragus</i> *	Russian thistle, tumbleweed						
	<i>Suaeda moquinii</i>	bush seepweed						
Cucurbitaceae - Gourd Family								
	<i>Brandegea bigelovii</i>	desert starvine						
Cuscutaceae - Dodder Family								
	<i>Cuscuta</i> sp.	Dodder						
Euphorbiaceae - Spurge Family								
	<i>Chamaesyce polycarpa</i>	smallseed sandmat	F	F	F	F		
	<i>Chamaesyce setiloba</i>	Yuma sandmat						
	<i>Croton californicus</i>	California croton		F		F		
CNPS List 3.2	<i>Ditaxis serrata</i> var. <i>californica</i> (syn: <i>Ditaxis californica</i>)	California ditaxis						
	<i>Ditaxis lanceolata</i>	Narrowleaf ditaxis, narrowleaf silverbush						
	<i>Ditaxis neomexicana</i>	New Mexico ditaxis				F	F	
	<i>Stillingia spinulosa</i>	broad leaved stillingia	F					
Fabaceae - Legume Family								
	<i>Acacia gregii</i>	Catclaw						
	<i>Astragalus aridus</i>	annual desert milkvetch						
	<i>Astragalus didymocarpus</i>	two-seeded milkvetch						
	<i>Astragalus insularis</i> var. <i>harwoodii</i>	Harwood's milkvetch						
	<i>Cercidium floridum</i> ssp. <i>floridum</i>	blue palo verde	F					
	<i>Dalea mollis</i>	silky dalea, hairy prairie clover						
	<i>Dalea mollissima</i>	silky dalea				F		
	<i>Lotus strigosus</i> var. <i>tomentellus</i>	strigose lotus						
	<i>Lupinus arizonicus</i>	Arizona lupine						
	<i>Lupinus concinnus</i>	bajada lupine						
	<i>Marina parryi</i>	Parry's false prairie clover						
	<i>Olneya tesota</i>	ironwood	F					
	<i>Prosopis glandulosa</i>	honey mesquite						
	<i>Psoralea argemone</i>	indigo bush	B	B		B		

2 3 4 5
5 5 5 5

NEW CHAMAESYCE MICROMERA

F | F | F | | | | |

Status	Scientific Name	Common Name	05/12	05/13	05/14	05/15
	<i>Psorothamnus schottii</i>	Schott's indigo bush				
	<i>Psorothamnus spinosus</i>	smoke tree				

Fouquieriaceae - Ocotillo Family			05/12	05/13	05/14	05/15
	<i>Fouquieria splendens</i> ssp. <i>splendens</i>	ocotillo				

Geraniaceae - Geranium Family			05/12	05/13	05/14	05/15
	<i>Erodium texanum</i>	Texas storksbill, Desert Heron's Bill				

Hydrophyllaceae - Waterleaf Family			05/12	05/13	05/14	05/15
	<i>Emmenanthe penduliflora</i>	whispering bells				
	<i>Nama demissum</i> var. <i>demissum</i>	Purplemat				
	<i>Nama pusillum</i>	small leaved nama				
	<i>Phacelia crenulata</i> var. <i>ambigua</i>	purplestem phacelia				
	<i>Phacelia crenulata</i> var. <i>minutiflora</i>	cleftleaf wildheliotrope				
	<i>Phacelia distans</i>	common phacelia				
	<i>Phacelia neglecta</i>	alkali phacelia				

Krameriaceae - Rhatany Family			05/12	05/13	05/14	05/15
	<i>Krameria grayi</i>	white rhatany				

Lamiaceae - Mint Family			05/12	05/13	05/14	05/15
	<i>Hyptis emoryi</i>	desert-lavender	B			
	<i>Salvia columbariae</i>	chia				

Loasaceae - Loasa Family			05/12	05/13	05/14	05/15
	<i>Mentzelia affinis</i>	yellowcomet				
	<i>Mentzelia albicaulis</i>	small flowered blazing star, white stemmed stickleaf				
	<i>Mentzelia involucrata</i>	whitebract blazingstar				

Malvaceae - Mallow Family			05/12	05/13	05/14	05/15
	<i>Eremalche exilis</i>	white mallow				
	<i>Eremalche rotundifolia</i>	desert five-spot				

Nyctaginaceae - Four O'Clock Family			05/12	05/13	05/14	05/15
	<i>Abronia villosa</i> var. <i>villosa</i>	sand verbena				
	<i>Allionia incarnata</i>	trailing allionia, windmills				

Onagraceae - Evening Primrose Family			05/12	05/13	05/14	05/15
	<i>Camissonia boothii</i> ssp. <i>desertorum</i>	desert suncup				
	<i>Camissonia brevipes</i> ssp. <i>brevipes</i>	golden suncup				
	<i>Camissonia claviformis</i>	browneyes				
	<i>Oenothera deltoides</i> ssp. <i>deltoides</i>	devil's lantern				
	<i>Oenothera primiveris</i> ssp. <i>bufonius</i>	desert evening primrose				

Orobanchaceae - Broom-rape Family			05/12	05/13	05/14	05/15
	<i>Orobanche cooperi</i>	desert broomrape				

Papaveraceae - Poppy Family			05/12	05/13	05/14	05/15
	<i>Petalonox thurberi</i> ssp. <i>thurberi</i>					

NEW *Petalonox thurberi* ssp. *thurberi*

F F

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12
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Status	Scientific Name	Common Name							
	<i>Eschscholzia glyptosperma</i>	desert poppy , desert golden poppy							
	<i>Eschscholzia minutiflora</i>	pygmy poppy, Coville's poppy							
	<i>Eschscholzia parishii</i>	Parish's poppy							

Plantaginaceae - Plantain Family

	<i>Plantago ovata</i>	desert Indianwheat, woolly plantain							
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Polemoniaceae - Phlox Family

CNPS 1B.2	<i>Eriastrum harwoodii</i>	Harwood's woollystar							
	<i>Eriastrum sparsiflorum</i>	Great Basin woollystar							
	<i>Gilia stellata</i>	star gilia							
	<i>Langloisia setosissima</i> ssp. <i>setosissima</i>	bristly langloisia							
	<i>Linanthus jonesii</i>	Jones' linanthus							
	<i>Loeseliastrum schottii</i>	Schott's calico							

Polygonaceae - Buckwheat Family

	<i>Chorizanthe brevicornu</i> var. <i>brevicornu</i>	brittle spineflower							
	<i>Chorizanthe corrugata</i>	wrinkled spineflower							
	<i>Chorizanthe rigida</i>	spiny-herb							
	<i>Eriogonum inflatum</i>	desert trumpet							
	<i>Eriogonum thomasii</i>	Thomas' eriogonum							

Portulacaceae - Purslane Family

	<i>Calandrinia ambigua</i>	desert calandrinia							
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Resedaceae - Mignonette Family

	<i>Oligomeris linifolia</i>	lineleaf whitepuff							
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Solanaceae - Nightshade Family

	<i>Datura discolor</i>	Jimson weed	NOT on OCT 12	B	B	B			
	<i>Lycium andersonii</i>	water jacket, Anderson's desert thorn							
	<i>Nicotiana obtusifolia</i>	desert tobacco							
	<i>Petunia parviflora</i>	wild petunia							

Tamaricaceae - Tamarisk Family

*nonnative	<i>Tamarix</i> sp. *	tamarisk							
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Viscaceae - Mistletoe Family

	<i>Phoradendron californicum</i>	desert mistletoe							
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Zygophyllaceae - Caltrop Family

	<i>Fagonia laevis</i>	California fagonbush							
	<i>Larrea tridentata</i>	creosote bush							

NEW KALLISTROMIA CALIFORNIA

NOT on OCT 12 F F F F B B

FIELD JOURNAL

Job Name PALEN FALL BOTANICAL SURVEY Job # 09080081.49
 Observer REYNALDO FELLOS Add'l Persons KYLE HARRER, LANCE WOLLEY
 Date 10/12 - 10/15/10 Start Time _____ End Time _____
 Location PALEN DRY LAKE
 Habitat Description SONORAN DESERT

Purpose of Visit BOTANICAL SURVEY - FALL ANNUALS
 Start Weather: Temp 100°F Wind Sp/Dir From _____ %Clds 0 Pcp 0

Describe Surrounding Land Uses and Discuss Wildlife Movement Corridors and Habitat Linkages.

Obs. No.	Time	Notes
10/12 RPE1		COLLECTED 2 TYPES OF ATRIPLEX IN FRUITING FRUITING
RPE2		PSOROTHAMNUS EMORYI FLOWERING 4 PLANTS IN AREA
RPE3		MORE FLOWERING PSOROTHAMNUS 17 PLANTS
RPE4		SALSOLA TRAGUS IN VARIOUS STAGES (SPROUTING, VEG, FRUITING)
RPE5		DIANTHEMA PORTULACAESTRUM 10 PLANTS IN AREA
RPE6		PALAFOXIA ARIDA VAR ARIDA SEEN SPROUTED IN VEGETATIVE STAGE.
RPE7		TIQUINA PULCATA IN VEGETATIVE STAGE
10/13 RPE8		CHAMAESYCE POLYCARPA FLOWERING + FRUITING
RPE9		FLOWERING PALAFOXIA ARIDA ARIDA
RPE10		CHAMAESYCE MICRONEA
RPE11		PECTIS PAPPOSA } ALL FLOWERING
		KALLSTROEMIA CALIFORNICA } MANY FOUND IN THIS AREA
RPE12		BOUTELOUA BARBATA BARBATA FRUITING AND MANY PECTIS PAPPOSA
10/14 RPE13		STILINGIA SPINULOSA FLOWERING
RPE14		TIDESTROMIA OBLONGIFOLIA FRUITING
RPE15		DALEA MOUSSIMIA FLOWERING
10/15 RPE16		• SUAEDA SUAEDA MOQUINII MOQUINII UNUSUAL LEAF-SHAPE IN DUNES
RPE17		CROTON CALIFORNICUS FLOWERING
RPE18		SALSOLA TRAGUS EARLY STAGE OF GROWTH
RPE19		SESUVIUM VERRUCOSUM VEGETATIVE STATE
RPE20		SCHISMUS ARABICUS FRUITING
RPE21		CHAMAESYCE POLYCARPA AND MICRONEA ABUNDANT IN AREA
RPE22		DITAXIS NEOMEXICANA FLOWERING

Current Weather: Temp _____ Wind Sp/Dir From _____ %Clds _____ Pcp _____

OCT 12 2010

Lance Woolley

PALEN PLANT LIST 04.22.2010.LWO 0427FS.PALEN_PLANT_LIST_04.22.2010.LWO
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Scientific Name	Common Name
Monocots	
Liliaceae - Lily Family	
<i>Hesperocallis undulata</i>	desert lily
Poaceae - Grass Family	
<i>Festuca</i> sp.	fescue
<i>Phalaris minor</i> *	little-seed Canary grass
<i>Pleuraphis rigida</i> Flowering	big galleta grass
<i>Schismus arabicus</i> *	Mediterranean grass
<i>Vulpia octoflora</i>	sixweeks fescue
Dicots	
Aizoaceae - Fig-Marigold Family	
<i>Sesuvium verrucosum</i> Green	western sea-purslane
Amaranthaceae - Amaranth Family	
<i>Tidestromia oblongifolia</i>	Arizona honeysweet
Asclepiadaceae - Milkweed Family	
<i>Sarcostemma cynanchoides</i> ssp. <i>hartwegii</i>	climbing milkweed
Asteraceae - Sunflower Family	
<i>Ambrosia dumosa</i> Green	burweed, white-bursage
<i>Atrichoseris platyphylla</i>	parachute plant, gravel ghost
<i>Baileya pauciradiata</i>	desert-marigold
<i>Baileya pleniradiata</i>	woolly desert-marigold
<i>Bebbia juncea</i> var. <i>aspera</i>	rush sweetbush
<i>Calycoseris wrightii</i>	white tackstem
<i>Chaenactis carphoclinia</i>	pebble pincushion
<i>Chaenactis fremontii</i>	desert pincushion
<i>Chaenactis stevioides</i>	desert pincushion
<i>Dicoria canescens</i>	dicoria
<i>Encelia farinosa</i>	brittlebush, incienso
<i>Encelia frutescens</i>	button brittlebush
<i>Geraea canescens</i>	desert-sunflower
<i>Hymenoclea salsola</i>	cheesebush
<i>Isocoma acradenia</i>	alkali goldenbush
<i>Malacothrix glabrata</i>	desert dandelion
<i>Monoptilon bellioides</i>	Mojave desertstar
<i>Palafoxia arida</i> var. <i>arida</i> Flowering	Spanish needle
<i>Perityle emoryi</i>	Emory's rockdaisy
<i>Psathyrotes ramosissima</i> Flowering	turtleback <i>Tidestromia ob.</i> ✓
<i>Rafinesquia neomexicana</i>	desert chicory
<i>Stephanomeria pauciflora</i> var. <i>pauciflora</i>	wire lettuce <i>Mentzelia multiflora</i> ✓
<i>Stylocline gnaphaloides</i>	nest straw <i>ssp. longitoba</i> ✓

- *Pectis papposa* ✓
- *Chamaejasme microrrhiza* ✓
- *Asclepias erosa*
- *Trichostema* part of *neostromia* ✓

- *Bouteloua barbata* var. *barbata* ✓
- *Keiskeeria californica* ✓
- *Petaloxa thurberiana*, Thurb. ✓

Scientific Name	Common Name
<i>Trichoptilium incisum</i>	yellowhead, yellowdome
Boraginaceae - Borage Family	
<i>Amsinckia menziesii</i> var. <i>menziesii</i>	rancher's fireweed
<i>Amsinckia tessellata</i>	devil's lettuce
<i>Cryptantha angustifolia</i>	narrow leaved cryptantha
<i>Cryptantha barbiger</i>	bearded cryptantha
<i>Cryptantha costata</i>	ribbed cryptantha
<i>Cryptantha maritima</i>	Guadalupe cryptantha
<i>Cryptantha micrantha</i>	redroot cryptantha
<i>Cryptantha nevadensis</i>	Nevada cryptantha
<i>Cryptantha pterocarya</i> var. <i>cycloptera</i>	wingnut cryptantha
<i>Heliotropium convolvulaceum</i> var. <i>convolvulaceum</i>	Bindweed heliotrope
<i>Pectocarya heterocarpa</i>	combseed
<i>Pectocarya platycarpa</i>	broadfruit combseed
<i>Tiquilia plicata</i> <i>Green</i>	fanleaf crinklemat, plicate coldenia
Brassicaceae - Mustard Family	
<i>Brassica tournefortii</i> *	Saharan mustard, Sahara mustard
<i>Dithyrea californica</i>	spectacle-pod
<i>Guillenia lasiophyllum</i>	California mustard
<i>Lepidium lasiocarpum</i>	pepperweed
<i>Sisymbrium irio</i> *	London rocket
<i>Streptanthella longirostris</i>	streptanthella
Cactaceae - Cactus Family	
<i>Echinocereus engelmannii</i>	hedgehog cactus
<i>Ferocactus cylindraceus</i> var. <i>cylindraceus</i>	California barrel cactus
<i>Mammillaria tetrancistra</i>	common fishhook cactus
<i>Opuntia bigelovii</i>	teddybear cholla
<i>Opuntia echinocarpa</i>	silver cholla, golden cholla
<i>Opuntia ramosissima</i>	pencil cactus, diamond cholla
Campanulaceae - Bellflower Family	
<i>Nemacladus glanduliferus</i> var. <i>glanduliferus</i>	glandular threadplant
Caryophyllaceae - Pink Family	
<i>Achyronychia cooperi</i>	onyx flower
Chenopodiaceae - Goosefoot Family	
<i>Atriplex canescens</i> <i>Green</i>	fourwing saltbush
<i>Atriplex canescens</i> ssp. <i>nuevo</i>	saltbush
<i>Atriplex polycarpa</i>	allscale saltbrush
<i>Monolepis nuttalliana</i>	poverty weed
<i>Salsola tragus</i> <i>Green</i>	Russian thistle, tumbleweed

Scientific Name	Common Name
<i>Suaeda moquini</i> → Green	bush seepweed
Cucurbitaceae - Gourd Family	
<i>Brandegea bigelovii</i>	desert starvine
Cuscutaceae - Dodder Family	
<i>Cuscuta</i> sp.	dodder
Euphorbiaceae - Spurge Family	
<i>Chamaesyce polycarpa</i> - Flowering	smallseed sandmat
<i>Chamaesyce setiloba</i>	Yuma sandmat
<i>Croton californicus</i> Flowering	California croton
<i>Ditaxis californica</i>	California ditaxis
<i>Ditaxis lanceolata</i>	Narrowleaf ditaxis, narrowleaf silverbush
<i>Ditaxis neomexicana</i>	New Mexico ditaxis
<i>Stillingia spinulosa</i> Flowering	broad leaved stillingia
Fabaceae - Legume Family	
<i>Acacia gregii</i>	catclaw
<i>Astragalus aridus</i>	annual desert milkvetch
<i>Astragalus didymocarpus</i>	two-seeded milkvetch
<i>Astragalus insularis</i> var. <i>harwoodii</i>	Harwood's milkvetch
<i>Cercidium floridium</i> ssp. <i>floridium</i> → Green	blue palo verde
<i>Dalea mollis</i>	silky dalea, hairy prairie clover
<i>Dalea mollissima</i> Flowering	silky dalea <i>DALEA MOLLISSIMA</i>
<i>Lotus strigosus</i> var. <i>tomentellus</i>	strigose lotus
<i>Lupinus arizonicus</i>	Arizona lupine
<i>Lupinus concinnus</i>	bajada lupine
<i>Marina parryi</i>	Parry's false prairie clover
<i>Olneya tesota</i>	ironwood
<i>Prosopis glandulosa</i> → Green	honey mesquite
<i>Psoralea emoryi</i> Flowering	indigo bush
<i>Psoralea schottii</i>	Schott indigo bush
<i>Psoralea spinosus</i>	smoke tree
Fouquieriaceae - Ocotillo Family	
<i>Fouquieria splendens</i> ssp. <i>splendens</i>	ocotillo
Geraniaceae - Geranium Family	
<i>Erodium texanum</i>	Texas storksbill, Desert Heron's Bill
Hydrophyllaceae - Waterleaf Family	
<i>Emmenanthe penduliflora</i>	whispering bells
<i>Nama demissum</i> var. <i>demissum</i>	purplemat
<i>Nama pusillum</i>	small leaved nama
<i>Phacelia crenulata</i> var. <i>ambigua</i>	purplestem phacelia
<i>Phacelia crenulata</i> var. <i>minutiflora</i>	cleftleaf wildheliotrope

Scientific Name	Common Name
<i>Phacelia distans</i>	common phacelia
<i>Phacelia neglecta</i>	alkali phacelia
Krameriaceae - Rhatany Family	
<i>Krameria grayi</i>	white rhatany
Lamiaceae - Mint Family	
<i>Hyptis emoryi</i>	desert-lavender
<i>Salvia columbariae</i>	chia
Loasaceae - Loasa Family	
<i>Mentzelia affinis</i>	yellowcomet
<i>Mentzelia albicaulis</i>	small flowered blazing star, white stemmed stickleaf
<i>Mentzelia involucrata</i>	whitebract blazingstar
Malvaceae - Mallow Family	
<i>Eremalche exilis</i>	white mallow
<i>Eremalche rotundifolia</i>	desert five-spot
Martyniaceae - Unicorn-Plant Family	
<i>Proboscidea althaeifolia</i>	desert unicorn-plant
Nyctaginaceae - Four O'Clock Family	
<i>Abronia villosa</i> var. <i>villosa</i>	sand verbena
<i>Allionia incarnata</i>	trailing allionia, windmills
Onagraceae - Evening Primrose Family	
<i>Camissonia boothii</i> ssp. <i>desertorum</i>	desert suncup
<i>Camissonia brevipes</i> ssp. <i>brevipes</i>	golden suncup
<i>Camissonia claviformis</i>	browneyes
<i>Oenothera deltooides</i> ssp. <i>deltooides</i>	devil's lantern
<i>Oenothera primiveris</i> ssp. <i>bufonius</i>	desert evening primrose
Orobanchaceae - Broom-rape Family	
<i>Orobanche cooperi</i>	desert broomrape
Papaveraceae - Poppy Family	
<i>Eschscholzia glyptosperma</i>	desert poppy , desert golden poppy
<i>Eschscholzia minutiflora</i>	pygmy poppy, Coville's poppy
<i>Eschscholzia parishii</i>	Parish's poppy
Plantaginaceae - Plantain Family	
<i>Plantago ovata</i>	desert Indianwheat, woolly plantain
Polemoniaceae - Phlox Family	
<i>Eriastrum harwoodii</i>	Harwood's woollystar
<i>Eriastrum sparsiflorum</i>	Great Basin woollystar
<i>Gilia stellata</i>	star gilia
<i>Langloisia setosissima</i> ssp. <i>setosissima</i>	bristly langloisia
<i>Linanthus jonesii</i>	Jones' linanthus
<i>Loeseliastrum schottii</i>	Schott's calico

Scientific Name	Common Name
Polygonaceae - Buckwheat Family	
<i>Chorizanthe brevicornu</i> var. <i>brevicornu</i>	brittle spineflower
<i>Chorizanthe corrugata</i>	wrinkled spineflower
<i>Chorizanthe rigida</i>	spiny-herb
<i>Eriogonum inflatum</i>	desert trumpet
<i>Eriogonum thomasii</i>	Thomas Eriogonum
Portulacaceae - Purslane Family	
<i>Calandrinia ambigua</i>	desert calandrinia
Resedaceae - Mignonette Family	
<i>Oligomeris linifolia</i>	lineleaf whitepuff
Solanaceae - Nightshade Family	
<i>Datura discolor</i>	Jimson weed
<i>Lycium andersonii</i>	water jacket, Anderson's desert thorn
<i>Nicotiana obtusifolia</i>	desert tobacco
<i>Petunia parviflora</i>	wild petunia
Tamaricaceae - Tamarisk Family	
<i>Tamarix</i> sp. *	Tamarisk
Viscaceae - Mistletoe Family	
<i>Phoradendron californicum</i>	desert mistletoe
Zygophyllaceae - Caltrop Family	
<i>Fagonia laevis</i>	California fagonbush
<i>Larrea tridentata</i> <i>GREEN</i>	creosote bush

REVISED FLORAL INVENTORY

Attachment 3
Revised List of Floral Species Observed
Based on Spring and Fall 2010 Botanical Surveys

Note: the “Status” column in this table denotes both special status and nonnative plant species. Special status plant species are indicated by the appropriate California Native Plant Society (CNPS) Listing Status and are shown in bold text. Nonnative plant species are indicated wherever “*nonnative” appears in the Status column. A blank Status field corresponds to a native plant species with no special status. Species added during fall 2010 surveys are indicated by “ADDED” in the status field.

Status	Scientific Name	Common Name
Monocots		
Liliaceae - Lily Family		
	<i>Hesperocallis undulata</i>	desert lily
Poaceae - Grass Family		
ADDED	<i>Bouteloua barbata</i> var. <i>barbata</i>	six-weeks grama
nonnative	<i>Festuca</i> sp.	fescue
*nonnative	<i>Phalaris minor</i> *	little-seed Canary grass
	<i>Pleuraphis rigida</i>	big galleta grass
*nonnative	<i>Schismus arabicus</i> *	Mediterranean grass
	<i>Vulpia octoflora</i>	sixweeks fescue
Eudicots		
Aizoaceae - Fig-Marigold Family		
	<i>Sesuvium verrucosum</i>	western sea-purslane
ADDED	<i>Trianthema portulacastrum</i>	horse-purslane
Amaranthaceae - Amaranth Family		
	<i>Tidestromia oblongifolia</i>	Arizona honeysweet
Asclepiadaceae - Milkweed Family		
ADDED	<i>Asclepias erosa</i>	desert milkweed
CNPS 4.3	<i>Cynanchum utahense</i> (observed outside, but adjacent to the Combined Survey Area within 100 feet.)	Utah vine milkweed
	<i>Sarcostemma cynanchoides</i> ssp. <i>hartwegii</i>	climbing milkweed
Asteraceae - Sunflower Family		
	<i>Ambrosia dumosa</i>	burweed , white bursage
	<i>Atrichoseris platyphylla</i>	parachute plant , gravel ghost
	<i>Baileya pauciradiata</i>	desert-marigold
	<i>Baileya pleniradiata</i>	woolly desert-marigold
	<i>Bebbia juncea</i> var. <i>aspera</i>	rush sweetbush
	<i>Calycoseris wrightii</i>	white tackstem
	<i>Chaenactis carphoclinia</i>	pebble pincushion
	<i>Chaenactis fremontii</i>	desert pincushion

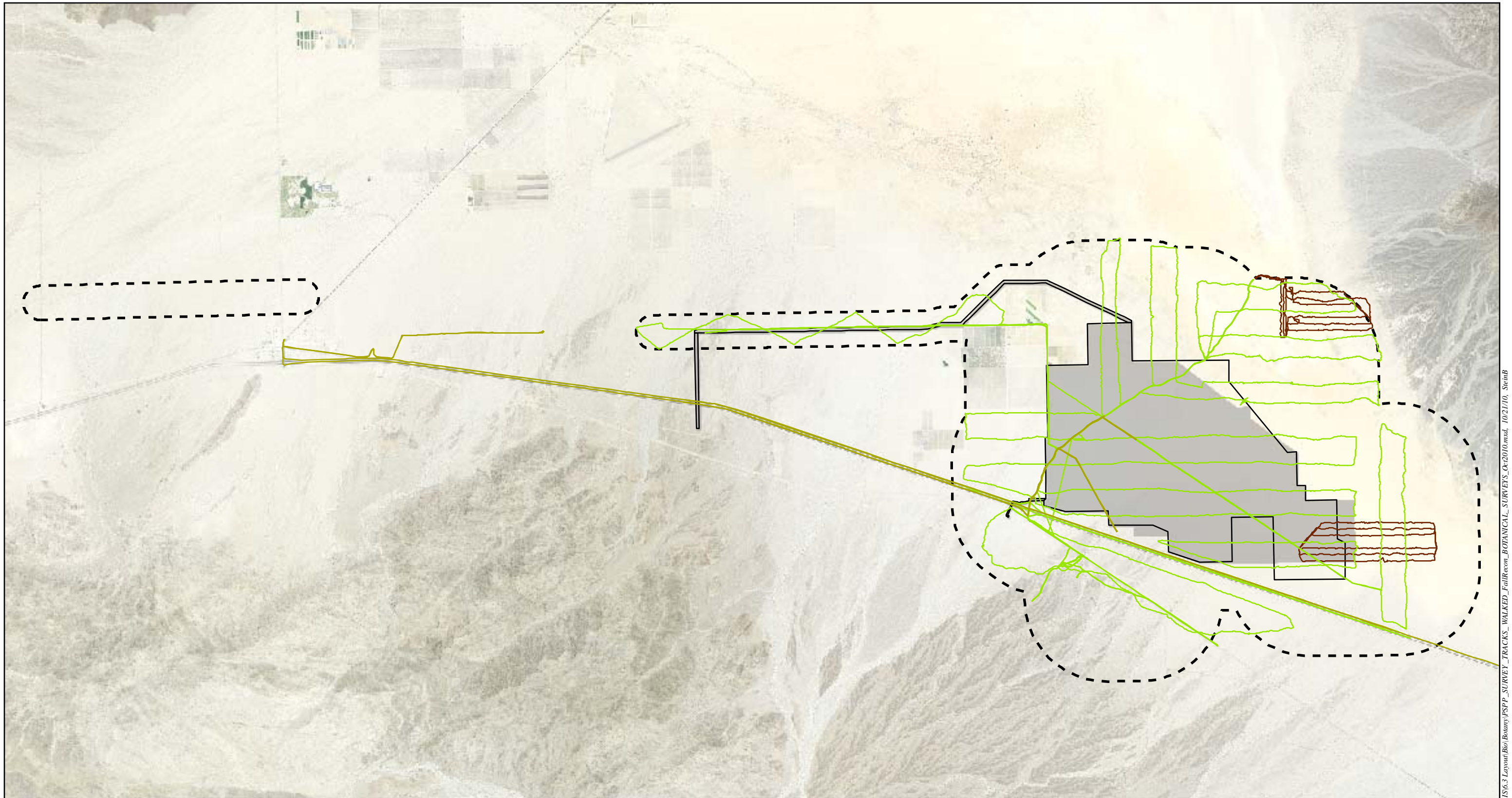
Status	Scientific Name	Common Name
	<i>Chaenactis stevioides</i>	desert pincushion
	<i>Dicoria canescens</i>	dicoria
	<i>Encelia farinosa</i>	brittlebush, incienso
	<i>Encelia frutescens</i>	button brittlebush
	<i>Geraea canescens</i>	desert-sunflower
	<i>Hymenoclea salsola</i>	cheesebush
	<i>Isocoma acradenia</i>	alkali goldenbush
	<i>Malacothrix glabrata</i>	desert dandelion
	<i>Monoptilon bellioides</i>	Mojave desertstar
	<i>Palafoxia arida</i> var. <i>arida</i>	Spanish needle
ADDED	<i>Pectis papposa</i> var. <i>papposa</i>	chinch weed
	<i>Perityle emoryi</i>	Emory's rockdaisy
	<i>Psathyrotes ramosissima</i>	turtleback
	<i>Rafinesquia neomexicana</i>	desert chicory
	<i>Stephanomeria pauciflora</i> var. <i>pauciflora</i>	wire lettuce
	<i>Stylocline gnaphaloides</i>	nest straw
	<i>Trichoptilium incisum</i>	yellowhead, yellowdome
Boraginaceae - Borage Family		
	<i>Amsinckia menziesii</i> var. <i>menziesii</i>	rancher's fireweed
	<i>Amsinckia tessellata</i>	devil's lettuce
	<i>Cryptantha angustifolia</i>	narrow leaved cryptantha
	<i>Cryptantha barbiger</i>	bearded cryptantha
	<i>Cryptantha costata</i>	ribbed cryptantha
	<i>Cryptantha maritime</i>	Guadalupe cryptantha
	<i>Cryptantha micrantha</i>	redroot cryptantha
	<i>Cryptantha nevadensis</i>	Nevada cryptantha
	<i>Cryptantha pterocarya</i> var. <i>cycloptera</i>	wingnut cryptantha
	<i>Heliotropium convolvulaceum</i> var. <i>convolvulaceum</i>	bindweed heliotrope
	<i>Pectocarya heterocarpa</i>	combseed
	<i>Pectocarya platycarpa</i>	broadfruit combseed
	<i>Tiquilia plicata</i>	fanleaf crinkleemat, plicate coldenia
Brassicaceae - Mustard Family		
	<i>Brassica tournefortii</i> *	Saharan mustard, Sahara mustard
	<i>Dithyrea californica</i>	spectacle-pod
	<i>Guillenia lasiophyllum</i>	California mustard
	<i>Lepidium lasiocarpum</i>	pepperweed
*nonnative	<i>Sisymbrium irio</i> *	London rocket
	<i>Streptanthella longirostris</i>	streptanthella
Cactaceae - Cactus Family		
	<i>Echinocactus polycephalus</i> var. <i>polycephalus</i>	cottontop cactus

Status	Scientific Name	Common Name
	<i>Echinocereus engelmannii</i>	hedgehog cactus
	<i>Ferocactus cylindraceus</i> var. <i>cylindraceus</i>	California barrel cactus
	<i>Mammillaria tetrancistra</i>	common fishhook cactus
	<i>Opuntia bigelovii</i>	teddybear cholla
	<i>Opuntia echinocarpa</i>	silver cholla, golden cholla
	<i>Opuntia ramosissima</i>	pencil cactus, diamond cholla
Campanulaceae - Bellflower Family		
	<i>Nemacladus glanduliferus</i> var. <i>glanduliferus</i>	glandular threadplant
Caryophyllaceae - Pink Family		
	<i>Achyronychia cooperi</i>	onyx flower
Chenopodiaceae - Goosefoot Family		
	<i>Atriplex canescens</i>	fourwing saltbush
	<i>Atriplex canescens</i> ssp. <i>nuevo</i>	Saltbush
	<i>Atriplex polycarpa</i>	allscale saltbrush
	<i>Monolepis nuttalliana</i>	poverty weed
*nonnative	<i>Salsola tragus</i> *	Russian thistle, tumbleweed
	<i>Suaeda moquinii</i>	bush seepweed
Cucurbitaceae - Gourd Family		
	<i>Brandegea bigelovii</i>	desert starvine
Cuscutaceae - Dodder Family		
	<i>Cuscuta</i> sp.	dodder
Euphorbiaceae - Spurge Family		
ADDED	<i>Chamaesyce micromera</i>	Sonoran sandmat
	<i>Chamaesyce polycarpa</i>	smallseed sandmat
	<i>Chamaesyce setiloba</i>	Yuma sandmat
	<i>Croton californicus</i>	California croton
CNPS List 3.2	<i>Ditaxis serrata</i> var. <i>californica</i> (syn: <i>Ditaxis californica</i>)	California ditaxis
	<i>Ditaxis lanceolata</i>	narrowleaf ditaxis, narrowleaf silverbush
	<i>Ditaxis neomexicana</i>	New Mexico ditaxis
	<i>Stillingia spinulosa</i>	broad leaved stillingia
Fabaceae - Legume Family		
	<i>Acacia gregii</i>	catclaw
	<i>Astragalus aridus</i>	annual desert milkvetch
	<i>Astragalus didymocarpus</i>	two-seeded milkvetch
	<i>Astragalus insularis</i> var. <i>harwoodii</i>	Harwood's milkvetch
	<i>Cercidium floridium</i> ssp. <i>floridium</i>	blue palo verde
	<i>Dalea mollis</i>	silky dalea, hairy prairie clover
	<i>Dalea mollisima</i>	silky dalea
	<i>Lotus strigosus</i> var. <i>tomentellus</i>	strigose lotus
	<i>Lupinus arizonicus</i>	Arizona lupine

Status	Scientific Name	Common Name
	<i>Lupinus concinnus</i>	bajada lupine
	<i>Marina parryi</i>	Parry's false prairie clover
	<i>Olneya tesota</i>	ironwood
	<i>Prosopis glandulosa</i>	honey mesquite
	<i>Psorothamnus emoryi</i>	indigo bush
	<i>Psorothamnus schottii</i>	Schott's indigo bush
	<i>Psorothamnus spinosus</i>	smoke tree
Fouquieriaceae - Ocotillo Family		
	<i>Fouquieria splendens</i> ssp. <i>splendens</i>	ocotillo
Geraniaceae - Geranium Family		
	<i>Erodium texanum</i>	Texas storksbill, Desert Heron's Bill
Hydrophyllaceae - Waterleaf Family		
	<i>Emmenanthe penduliflora</i>	whispering bells
	<i>Nama demissum</i> var. <i>demissum</i>	purplemat
	<i>Nama pusillum</i>	small leaved nama
	<i>Phacelia crenulata</i> var. <i>ambigua</i>	purplestem phacelia
	<i>Phacelia crenulata</i> var. <i>minutiflora</i>	cleftleaf wildheliotrope
	<i>Phacelia distans</i>	common phacelia
	<i>Phacelia neglecta</i>	alkali phacelia
Krameriaceae - Rhatany Family		
	<i>Krameria grayi</i>	white rhatany
Lamiaceae - Mint Family		
	<i>Hyptis emoryi</i>	desert-lavender
	<i>Salvia columbariae</i>	chia
Loasaceae - Loasa Family		
	<i>Mentzelia affinis</i>	yellowcomet
	<i>Mentzelia albicaulis</i>	small flowered blazing star, white stemmed stickleaf
	<i>Mentzelia involucrata</i>	whitebract blazingstar
ADDED	<i>Mentzelia multiflora</i> ssp. <i>longiloba</i>	stick-leaf, yerba amarilla
ADDED	<i>Petalonyx thurberi</i> ssp. <i>thurberi</i>	Thurber's sandpaper plant
Malvaceae - Mallow Family		
	<i>Eremalche exilis</i>	white mallow
	<i>Eremalche rotundifolia</i>	desert five-spot
Nyctaginaceae - Four O'Clock Family		
	<i>Abronia villosa</i> var. <i>villosa</i>	sand verbena
	<i>Allionia incarnata</i>	trailing allionia, windmills
Onagraceae - Evening Primerose Family		
	<i>Camissonia boothii</i> ssp. <i>desertorum</i>	desert suncup
	<i>Camissonia brevipes</i> ssp. <i>brevipes</i>	golden suncup
	<i>Camissonia claviformis</i>	browneyes

Status	Scientific Name	Common Name
	<i>Oenothera deltoides</i> ssp. <i>deltoides</i>	devil's lantern
	<i>Oenothera primiveris</i> ssp. <i>bufonius</i>	desert evening primrose
Orobanchaceae - Broom-rape Family		
	<i>Orobanche cooperi</i>	desert broomrape
Papaveraceae - Poppy Family		
	<i>Eschscholzia glyptosperma</i>	desert poppy , desert golden poppy
	<i>Eschscholzia minutiflora</i>	pygmy poppy, Coville's poppy
	<i>Eschscholzia parishii</i>	Parish's poppy
Plantaginaceae - Plantain Family		
	<i>Plantago ovata</i>	desert Indianwheat, woolly plantain
Polemoniaceae - Phlox Family		
CNPS 1B.2	<i>Eriastrum harwoodii</i>	Harwood's woollystar
	<i>Eriastrum sparsiflorum</i>	Great Basin woollystar
	<i>Gilia stellata</i>	star gilia
	<i>Langloisia setosissima</i> ssp. <i>setosissima</i>	bristly langloisia
	<i>Linanthus jonesii</i>	Jones' linanthus
	<i>Loeseliastrum schottii</i>	Schott's calico
Polygonaceae - Buckwheat Family		
	<i>Chorizanthe brevicornu</i> var. <i>brevicornu</i>	brittle spineflower
	<i>Chorizanthe corrugata</i>	wrinkled spineflower
	<i>Chorizanthe rigida</i>	spiny-herb
	<i>Eriogonum inflatum</i>	desert trumpet
	<i>Eriogonum thomasii</i>	Thomas' eriogonum
Portulacaceae - Purslane Family		
	<i>Calandrinia ambigua</i>	desert calandrinia
Resedaceae - Mignonette Family		
	<i>Oligomeris linifolia</i>	lineleaf whitepuff
Solanaceae - Nightshade Family		
	<i>Datura discolor</i>	jimson weed
	<i>Lycium andersonii</i>	water jacket, Anderson's desert thorn
	<i>Nicotiana obtusifolia</i>	desert tobacco
	<i>Petunia parviflora</i>	wild petunia
Tamaricaceae - Tamarisk Family		
nonnative	<i>Tamarix</i> sp.	tamarisk
Viscaceae - Mistletoe Family		
	<i>Phoradendron californicum</i>	desert mistletoe
Zygophyllaceae - Caltrop Family		
	<i>Fagonia laevis</i>	California fagonia
ADDED	<i>Kallstroemia californica</i>	California caltrop
	<i>Larrea tridentata</i>	creosote bush

SURVEY TRACKLOG



Legend

- Project BRSA
- Reconfigured Alternative 2 Disturbance Area
- Reconfigured Alternative 3 Disturbance Area

Track Logs (2010)

Level One Surveys (reconnaissance for germination)

- September 2010
- October 2010

Level Two Surveys (germination present, no special status plants detected)

- October 2010

1 in = 6,000 feet

0 6,000 12,000 Feet

Palen Solar Power Project

**Survey Tracks Walked or Driven
During Botanical Surveys**

Date: October 2010



BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT
COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 – WWW.ENERGY.CA.GOV

**APPLICATION FOR CERTIFICATION
FOR THE PALEN SOLAR POWER
PLANT PROJECT**

Docket No. 09-AFC-7

**PROOF OF SERVICE
(Revised 8/27/10)**

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DECLARATION OF SERVICE

I, Arrie Bachrach, declare that on October 26, 2010, I served and filed copies of the attached Fall Botanical Surveys, dated October 26, 2010. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at: http://www.energy.ca.gov/sitingcases/solar_millennium_palen

The documents have been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

(Check all that Apply)

FOR SERVICE TO ALL OTHER PARTIES:

- sent electronically to all email addresses on the Proof of Service list;
 by personal delivery;
 by delivering on this date, for mailing with the United States Postal Service with first-class postage thereon fully prepaid, to the name and address of the person served, for mailing that same day in the ordinary course of business; that the envelope was sealed and placed for collection and mailing on that date to those addresses **NOT** marked "email preferred."

AND

FOR FILING WITH THE ENERGY COMMISSION:

- sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below (*preferred method*);

OR

- depositing in the mail an original and 12 paper copies, as follows:

CALIFORNIA ENERGY COMMISSION

Attn: Docket No. 09-AFC-7
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.state.ca.us

I declare under penalty of perjury that the foregoing is true and correct, that I am employed in the county where this mailing occurred, and that I am over the age of 18 years and not a party to the proceeding.