URS

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DATE APR 26 2010
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April 26, 2010

Mr. Christopher Meyer
Project Manager
Attn: Docket No. 08-AFC-5
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512

Subject: Imperial Valley Solar (formerly Solar Two) (08-AFC-5)
Applicant's Submittal of Early Spring Botany Report
URS Project No. 27657106.00803

Dear Mr. Meyer:

On behalf of Imperial Valley Solar (formerly Solar Two), LLC, URS Corporation Americas (URS) hereby submits the Applicant's Early Spring Botany Survey Report.

I certify under penalty of perjury that the foregoing is true, correct, and complete to the best of my knowledge. I also certify that I am authorized to submit on behalf of Imperial Valley Solar, LLC.

Sincerely,

Angela Leiba
Project Manager

AL: ml

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San Diego, CA 92108
Tel: 619.294.9400
Fax: 619.293.7920

URS

April 26, 2010

Andrew Trouette
Bureau of Land Management
El Centro Field Office
1661 S. Fourth Street
El Centro, CA 92243

Joy Nishida
California Energy Commission
1516 Ninth Street, MS-4
Sacramento, CA 95814

Subject: Early Spring 2010 Botanical Surveys for Imperial Valley Solar
URS Project No. 27657106

INTRODUCTION

Botanical surveys were conducted for the Imperial Valley Solar (IVS) Project Site in 2007 and 2008. During these relatively dry years, no special status plant species were detected. In response to above average rainfall events that have occurred within Imperial County during 2010 to date, additional botanical surveys were conducted by URS Corporation (URS) for the IVS Project Site. These surveys incorporated survey protocols published by the Bureau of Land Management (BLM) (BLM 1996a, BLM 1996b, BLM 2001, and BLM 2009) and reviewed by the California Department of Fish and Game (CDFG), California Energy Commission (CEC) and BLM (BLM 2010, CDFG 2010, and CEC 2010) prior to the commencement of botanical surveys on the site.

METHODS

The site was divided into 110 approximately 95-acre survey plot cells (Figure 1). A pair of botanists (Table 1) visited two of these units each day and conducted sensitive plant surveys for specific target species and a general floristic inventory of plant species occurring on the IVS site (Tables 2 - 5). A complete and comprehensive survey for each unit was accomplished by walking transects with 100 ft spacing throughout the unit. The survey corridor width for the waterline survey was 150 feet from either side of Evan Hewes Highway. The transmission line survey corridor was 500-feet wide (250 feet from the centerline).

Surveyors used GPS units to orient themselves on site and walked transects either north to south or east to west. Each pair spent a minimum of three hours in a 95-acre grid cell to ensure that observers never surveyed more than 15 acres per hour. Typical rate of coverage was 12 acres per person per hour. Resumes for all surveyors are provided as Appendix A.

On February 21, 2010, URS botanist Lee Ripma visited reference populations to confirm the blooming periods and timing for two sensitive species with a moderate to high potential to occur within the Project site, Harwood's milk-vetch (*Astragalus insularis var. harwoodii*) and brown

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turbans (*Malperia tenuis*). In addition, other botanists working on the Project also visited these reference populations to ensure they had a good search image while conducting surveys on site. A full botanical survey of the proposed Project site [excluding "not a part parcels" (N.A.P.)] and associated proposed transmission line and waterline were conducted from February 22 to March 2, 2010.

RESULTS

Floristic surveys in 2010 resulted in the detection of 14 plant species on the IVS site that were not detected during the 2007 and 2008 surveys. Of these taxa, none are considered special status plant species. Two of the species detected on the site during the early spring surveys are on the California Native Plant Society (CNPS) "watch list" (List 4). These species were Thurber's pilostyles (*Pilostyles thurberi*) and Utah vine milkweed (*Cynanchum utahense*).

Thurber's pilostyles is a stem parasite on dye plant (*Psorothamnus emoryi*) that was found in two locations within the proposed transmission line corridor. Utah vine milkweed was recorded at 58 locations on the IVS site (Figure 2).

ADDITIONAL BOTANICAL SURVEYS AND SCHEDULE

A second round of botanical surveys of the entire Project site is tentatively scheduled for the week of April 5, 2010 to ensure a comprehensive and complete survey for potential sensitive plant species. All sensitive target species (see Table 5) with blooming periods outside of spring survey timelines are considered to have a low potential to occur within the Project boundary; however, CEC and BLM have requested late season (fall) surveys to be conducted to verify that impacts to state and federally listed Threatened, Endangered, Proposed, Petitioned, and Candidate or California Native Plant Society List 1A, 1B, or 2 plants will be minimized and mitigated.

Sincerely,

URS CORPORATION

Patrick Mock, PhD
Principal Scientist
PM:mv

cc: Daniel Stewart, BLM
Larry LaPre, BLM
Jim Stobaugh, BLM
Rick York, CEC
Christopher Meyer, CEC
Richard Knox, TSNA
Angela Leiba, URS

Attachments:

References

REFERENCES:

BLM 1996a. Bureau of Land Management. Special Status Plant Management. BLM Manual Handbook 6840-1.

BLM 1996b. Bureau of Land Management. Special Status Plant Management. BLM Manual Supplement 6840-06.

BLM 2001. Bureau of Land Management. Special Status Species Management. BLM Manual 6840 Revision.

BLM 2009. Bureau of Land Management. Survey Protocols for NEPA/ESA Compliance for BLM Special Status Plant Species.

BLM 2010. Personal communication between Patrick Mock and Andrew Trouette (BLM) in February 2010 regarding the botanical survey effort for the Imperial Valley Solar site.

CDFG 2010. Personal communication between Patrick Mock and Magdalena Rodriguez (CDFG) in February 2010 regarding the botanical survey effort for the Imperial Valley Solar site.

CEC 2010. Personal communication between Patrick Mock and Joy Nishida (CEC) in February 2010 regarding the botanical survey effort for the Imperial Valley Solar site.

Table 1
Survey Effort by Grid Cell

Cell Number	Surveyors	Date
1	LR, JB, AK	2/22/2010
2	LR, MB, JN	2/24/2010
3 NK,	JLE	2/26/2010
4 LN,	CT	2/22/2010
5 CB,	CaSn	2/22/2010
6 MW,	CeSh	2/22/2010
7 MB,	SA	2/22/2010
8 MB,	CaSn	2/26/2010
9 MB,	CaSn	2/26/2010
10 LN,	CT	2/26/2010
11 LN,	CT	2/26/2010
12	NK, JLE, AK	2/23/2010
13 NK,	JLE	2/22/2010
14	NK, JLE, AK	2/23/2010
15 MB,	CaSn	2/23/2010
16 MW,	CeSh	2/26/2010
17 MW,	CeSh	2/26/2010
18 LR,	AK	2/26/2010
19 LR,	AK	2/26/2010
20	CaSn, MB, CeSh, LN, LR	2/27/2010
21	CaSn, MB, CeSh, LN, LR	2/27/2010
22	CaSn, MB, CeSh, LN, LR	2/27/2010
23	LR, MB, MW, CeSh	2/28/2010
24	CaSn, MB, CeSh, LN, LR	2/27/2010
25	CaSn, MB, CeSh, LN, LR	2/27/2010
26 MW,	CeSh	2/24/2010
27 MW,	CeSh	2/24/2010
28	CB, SA, AK	2/24/2010
29	CB, SA, AK	2/24/2010
30 LN,	CT	2/24/2010
31 LN,	CT	2/24/2010
32	JLE, CT, AK, MW, NK	2/27/2010
33	JLE, CT, AK, MW, NK	2/27/2010
34	JLE, CT, AK, MW, NK	2/27/2010
35	JLE, CT, AK, MW, NK	2/27/2010
36	JLE, CT, AK, MW, NK	2/27/2010
37 CaSn,	JB	2/24/2010
38 CaSn,	JB	2/24/2010
39 NK,	JLE	2/24/2010

Table 1
Survey Effort by Grid Cell
(Continued)

Cell Number	Surveyors	Date
40 NK,	JLE	2/25/2010
41	LR, MB, JN	2/24/2010
42 NK,	JLE	2/24/2010
43 LN,	JLE	2/28/2010
44 CaSn,	AK	2/28/2010
45 LR,	MB	3/1/2010
46 LR,	MB	3/1/2010
47 NK,	CT	2/28/2010
48	CT, MW, LN, CeSh, JLE, NK	3/2/2010
49 NK,	CT	3/1/2010
50 NK,	CT	3/1/2010
51 MW,	CeSh	3/1/2010
52 MW,	CeSh	3/1/2010
53 NK,	JLE	2/25/2010
54 NK,	JLE	2/25/2010
55	MW, CT, JN	2/25/2010
56	MW, CT, JN	2/25/2010
57 CaSn,	AK	3/1/2010
58 LN,	JLE	3/1/2010
59 LN,	JLE	3/1/2010
60 LN,	CT	2/23/2010
61 MW,	CeSh	2/23/2010
62 MW,	CeSh	2/23/2010
63 CB,	SA	2/23/2010
64 LN,	CT	2/23/2010
65 JB,	LR	2/23/2010
66 CaSn,	AK	3/1/2010
67 JB,	LR	2/23/2010
68 CB,	SA	2/23/2010
69	SA, CB, JB	2/26/2010
Transmission Line	SA, CaSn, JB, CB, LN	2/25/2010
Water Line	LR, MB, AK, CeSh	2/25/2010
Reference Pop Checks	LR, MB	2/21/2010

Notes:
Surveyor Acronyms: AK = Aaron Keller, CaSn – Cara Suellen, CB = Caesara Brungraber , CeSh = Cecile Shohet, CT = Chris Thayer, JB = Jessica Birnbaum, JLE = Jolie Lonner Egert, LN = Lech Naumovich, LR = Lee Ripma, MB = Michelle Balk, MW = Michael Wood, NK = Neal Kramer, SA = Sundeep Amin

Table 2
Botanical Species Detected to Date on IVS Site

Scientific Name	Common Name
GYMNOSPERMS	
Ephedraceae	Ephedra Family
Ephedra trifurca	long-leaved ephedra
ANGIOSPERMS: MONOCOTS	
Agavaceae	Agave Family
Hesperocallis undulata	desert lily
Poaceae	Grass Family
Aristida adscensionis	six-weeks three-awn
Bouteloua aristidoides	needle grama
Bouteloua barbata var. *barbata*	six weeks grama
*Bromus madritensis**	foxtail chess
*Cynodon dactylon**	Bermuda grass
Eragrostis sp.	lovegrass
*Phalaris minor**	Mediterranean canary grass
Pleuraphis rigida	galleta grass
*Schismus barbatus**	Mediterranean schismus
ANGIOSPERMS: EUDICOTS	
Aizoaceae	Fig-Marigold Family
*Mesembryanthemum crystallinum**	crystalline iceplant
*Mesembryanthemum nodiflorum**	slender-leaved iceplant
Tetragonia tetragonioides	New Zealand spinach
Amaranthaceae	Amaranth Family
Atriplex canescens	four-wing saltbush
Atriplex hymenelytra	desert holly
Atriplex polycarpa	allscale
*Chenopodium murale**	nettle-leaf goosefoot
Suaeda nigra (=S. moquinii)	seepweed
Tidestromia oblongifolia	honeysweet
Asclepiadaceae	Milkweed Family
Asclepias albicans	white-stem milkweed
Asclepias subulata	rush milkweed
Funastrum utahense (CNPS List 4.2)	Utah vine milkweed
Asteraceae	Sunflower Family
Ambrosia dumosa	bursage
Baileya pauciradiata	desert marigold

Table 2
Botanical Species Detected to Date on IVS Site
(Continued)

Scientific Name	Common Name
Bebbia juncea	rush sweetbush
Calycoseris wrightii	white tackstem
Chaenactis carphoclinia var. *carphoclinia*	pebble pincushion
Chaenactis fremontii	pincushion
Chaenactis stevioides	desert pincushion
Encelia farinosa	brittlebrush
Encelia frutescens	rayless encelia
Geraea canescens	desert sunflower
Gutierrezia sarothrae	matchweed
Hymenoclea salsola	burrobrush
Isocoma acradenia var. *acradenia*	alkali goldenbush
Isocoma acradenia var. *eremophila*	alkali goldenbush
*Lactuca serriola**	prickly lettuce
Malacothrix glabrata	desert dandelion
Monoptilon bellioides	desert star
Palafoxia arida var. *arida*	desert Spanish-needle
Pectis papposa	cinchweed
Perityle emoryi	rock daisy
Pluchea sericea	arrow weed
Psathyrotes ramosissima	turtleback
Rafinesquia neomexicana	desert chicory
Senecio mohavensis	mojave groundsel
*Sonchus asper**	prickly sow thistle
*Sonchus oleraceus**	common sow thistle
Stephanomeria pauciflora	wire lettuce
Tetradymia stenolepis	cotton-thorn
Boraginaceae	Borage Family
Cryptantha angustifolia	narrow-leaf cryptantha
Cryptantha maritima	cryptantha
Cryptantha micrantha	cryptantha
Pectocarya heterocarpa	pectocarya
Pectocarya peninsularis	peninsular pectocarya
Pectocarya platycarpa	pectocarya
Brassicaceae	Mustard Family
*Brassica tournefortii**	wild turnip

Table 2
Botanical Species Detected to Date on IVS Site
(Continued)

Scientific Name	Common Name
Lepidium lasiocarpum var. *lasiocarpum*	hariy podded pepper grass
*Sisymbrium altissimum**	tumble mustard
Streptanthella longirostris	streptanthella
Cactaceae	Cactus family
Cylindropuntia echinocarpa	silver cholla
Caryophyllaceae	Pink Family
Achyronychia cooperi	frost-mat
Ehretiaceae	Ehretia Family
Tiquilia palmeri	Palmer's tiquilia
Tiquilia plicata	plicate coldenia
Euphorbiaceae	Spurge Family
Chamaesyce micromera	prostrate spurge
Chamaesyce polycarpa	sand mat
Chamaesyce setiloba	Yuma sand mat
Ditaxis neomexicana	common ditaxis
Ditaxis serrata	Yuma silverbush
Stillingia linearifolia	stillingia
Stillingia spinulosa	annual stillingia
Fabaceae	Legume Family
Astragalus palmeri	milkvetch
Dalea mollis	dalea
Dalea mollissima	hairy dalea
*Parkinsonia aculeate**	Mexican palo verde
Parkinsonia floridum	palo verde
Prosopis glandulosa	mesquite
Prosopis strombulifera	Argentine screwbean
Psorothamnus emoryi	dye plant
Psorothamnus schottii	indigobush
Psorothamnus spinosus	smoke tree
Fouquieriaceae	Ocotillo Family
Fouquieria splendens ssp. *splendens*	ocotillo
Geraniaceae	Geranium Family
*Erodium cicutarium**	red-stemmed filaree
Erodium texanum	filaree
Hydrophyllaceae	Waterleaf Family

Table 2
Botanical Species Detected to Date on IVS Site
(Continued)

Scientific Name	Common Name
Phacelia crenulata var. *minutiflora*	notch-leaved phacelia
Krameriaceae	Rhatany Family
Krameria erecta	pima rhatany
Krameria grayi	white rhatany
Loasaceae	Loasa Family
Mentzelia albicaulis	white-stemmed blazing star
Petalonyx thurberi ssp. *thurberi*	sandpaper plant
Malvaceae	Mallow Family
Eremalche rotundifolia	desert five-spot
*Malva parviflora**	Cheeseweed
Sphaeralcea ambigua	desert mallow
Nyctaginaceae	Four O-clock Family
Abronia villosa var. *villosa*	hairy sand-verbena
Allionia incarnata	trailing windmills
Onagraceae	Evening-Primrose Family
Camissonia boothii	bottlebrush primrose
Camissonia brevipes var. *brevipes*	golden sun cup
Camissonia californica	California evening primrose
Camissonia claviformis ssp. *claviformis*	brown-eyed evening primrose
Camissonia claviformis spp. *peirsonii*	brown-eyed evening primrose
Oenothera deltoides ssp. *deltoides*	devil's lantern
Orobanchaceae	Broom-Rape Family
Orobanche cooperi	pine broom-rape
Papaveraceae	Poppy Family
Eschscholzia minutiflora	pygmy goldenpoppy
Plantaginaceae	Plantain Family
Plantago ovata	wooly plantain
Polemoniaceae	Phlox Family
Gilia latifolia	broad-leaved gilia
Langloisia setosissima	langlosia
Polygonaceae	Buckwheat Family
Chorizanthe brevicornu	brittle spineflower
Chorizanthe corrugata	wrinkled spineflower
Chorizanthe rigida	rigid spineflower
Eriogonum deflexum	skeleton weed

Table 2
Botanical Species Detected to Date on IVS Site
(Continued)

Scientific Name	Common Name
Eriogonum inflatum	desert trumpet
Eriogonum reniforme	buckwheat
Eriogonum thomasii	Thomas buckwheat
Portulacaceae	Purselane Family
Calyptridium monandrum	pussypaws
Rafflesiaceae	
Pilostyles thurberi (CNPS List 4.3)	Thurber's pilostyles
Resdaceae	Mignonette Family
Oligomeris linifolia	narrow-leaved oligomeris
Solanaceae	Nightshade Family
Datura discolor	desert thornapple
Lycium brevipes var. *brevipes*	desert-thorn
Lycium fremontii	Fremont desert-thorn
Tamaricaceae	Tamarisk Family
*Tamarix aphylla**	Athel tamarisk
*Tamarix parviflora**	smallflower tamarisk
*Tamarix ramosissima**	Mediterranean tamarisk
Viscaceae	Mistletoe Family
Phoradendron californicum	desert mistletoe
Zygophyllaceae	Caltrop Family
Fagonia pachyacantha	sticky fagonia
Kallstroemia grandiflora	Arizona caltrop
Larrea tridentata	creosote
*Tribulus terrestris**	puncture vine

*non-native

Table 3
Botanical Species Detected in the IVS Waterline Corridor

Scientific Name	Common Name
ANGIOSPERMS: MONOCOTS	
Arecaeae	Palm Family
*Phoenix dactylifera**	date palm
*Washingtonia robusta**	Mexican fan palm
Agavaceae	Agave Family
Hesperocallis undulata	desert lily
Poaceae	Grass Family
Aristida adscensionis	six-weeks three-awn
*Arundo donax**	giant reed
*Avena sativa**	cultivated oats
*Cynodon dactylon**	Bermuda grass
Distichlis spicata	saltgrass
*Phalaris minor**	Mediterranean canary grass
Phragmites australis	common reed
Pleuraphis rigida	galleta grass
*Schismus barbatus**	Mediterranean schismus
Typhaceae	Cattail Family
Typha latifolia	broad-leaved cattail
ANGIOSPERMS: EUDICOTS	
Aizoaceae	Fig-Marigold Family
Sesuvium verrucosum	western sea-purslane
Amaranthaceae	Amaranth Family
Allenrolfea occidentalis	iodinebush
Atriplex canescens	four-wing saltbush
Atriplex hymenelytra	desert holly
Atriplex lentiformis ssp. torreyi	Torrey's saltbush
Atriplex polycarpa	allscale
*Atriplex semibaccata**	Australian saltbush
*Chenopodium murale**	nettle-leaf goosefoot
Suaeda nigra (=S. moquinii)	seepweed
Tidestromia oblongifolia	honeysweet
Apocynaceae	Dogbane Family
*Nerium oleander**	oleander
Asteraceae	Sunflower Family
Ambrosia dumosa	bursage

Table 3
Botanical Species Detected in the IVS Waterline Corridor
(Continued)

Scientific Name	Common Name
Baccharis sergiloides	squaw waterweed baccharis
Encelia frutescens	rayless encelia
Geraea canescens	desert sunflower
Isocoma acradenia var. *acradenia*	alkali goldenbush
Palafoxia arida var. *arida*	desert Spanish-needle
Pectis papposa	cinchweed
Pluchea sericea	arrow weed
ANGIOSPERMS: MONOCOTS	
*Sonchus asper**	prickly sow thistle
*Sonchus oleraceus**	common sow thistle
Stephanomeria pauciflora	wire lettuce
Boraginaceae	Borage Family
Cryptantha angustifolia	narrow-leaf cryptantha
Heliotropium curassavicum	salt heliotrope
Brassicaceae	Mustard Family
*Sisymbrium altissimum**	tumble mustard
Ehretiaceae	Ehretia Family
Tiquilia palmeri	Palmer's tiquilia
Tiquilia plicata	plicate coldenia
Euphorbiaceae	Spurge Family
Chamaesyce polycarpa	sand mat
Croton californicus	California croton
Croton wigginsii (CNPS List 2.2)	Wiggins' croton
Ditaxis neomexicana	common ditaxis
Fabaceae	Legume Family
*Medicago sativa**	alfalfa
*Parkinsonia aculeate**	Mexican palo verde
Prosopis glandulosa	mesquite
Prosopis strombulifera	Argentine screwbean
Psorothamnus emoryi	dye plant
Geraniaceae	Geranium Family
*Erodium cicutarium**	red-stemmed filaree
Erodium texanum	Filaree
Malvaceae	Mallow Family

Table 3
Botanical Species Detected in the IVS Waterline Corridor
(Continued)

Scientific Name	Common Name
*Malva parviflora**	cheeseweed
Malvella leprosa	alkali mallow
Sphaeralcea ambigua	desert mallow
Myrtaceae	Myrtle Family
*Eucalyptus sideroxylon**	red ironbark
Nyctaginaceae	Four O-clock Family
Allionia incarnata	trailing windmills
Onagraceae	Evening-Primrose Family
Camissonia boothii	bottlebrush primrose
Oxalidaeae	Oxalis Family
*Oxalis corniculata**	creeping wood-sorrel
Plantaginaceae	Plantain Family
Plantago ovata	wooly plantain
Polygonaceae	Buckwheat Family
Chorizanthe rigida	rigid spineflower
Persicaria hydropiperoides (=Polygonum h.)	water pepper
ANGIOSPERMS: MONOCOTS	
Rafflesiaceae	
Pilostyles thurberi (CNPS List 4.3)	Thurber's pilostyles
Resdaceae	Mignonette Family
Oligomeris linifolia	narrow-leaved oligomeris
Rutaceae	Rue Family
*Citrus sinensis**	orange
Salicaeae	Willow Family
Salix exigua	narrow-leaved willow
Solanaceae	Nightshade Family
Datura discolor	desert thornapple
Lycium brevipes var. *brevipes*	desert-thorn
Tamaricaceae	Tamarisk Family
*Tamarix aphylla**	Athel
*Tamarix ramosissima**	Mediterranean tamarisk

*non-native

Table 4
Botanical Species Detected in the IVS Transmission Line Corridor

Scientific Name	Common Name
GYMNOSPERMS	
Ephedraceae	Ephedra Family
Ephedra trifurca	long-leaved ephedra
ANGIOSPERMS: MONOCOTS	
Agavaceae	Agave Family
Hesperocallis undulata	desert lily
Poaceae	Grass Family
Aristida adscensionis	six-weeks three-awn
Pleuraphis rigida	galleta grass
*Schismus barbatus**	Mediterranean schismus
ANGIOSPERMS: EUDICOTS	
Amaranthaceae	Amaranth Family
Atriplex canescens	four-wing saltbush
Atriplex hymenelytra	desert holly
Asteraceae	Sunflower Family
Ambrosia dumosa	bursage
Bebbia juncea	rush sweetbush
Chaenactis carphoclinia var. *carphoclinia*	pebble pincushion
Encelia frutescens	rayless encelia
Geraea canescens	desert sunflower
Hymenoclea salsola	burrobrush
Isocoma acradenia var. *eremophila*	alkali goldenbush
Palafoxia arida var. *arida*	desert Spanish-needle
Pluchea sericea	arrow weed
Psathyrotes ramosissima	turtleback
Stephanomeria pauciflora	wire lettuce
Boraginaceae	Borage Family
Cryptantha angustifolia	narrow-leaf cryptantha
Cryptantha maritima	cryptantha
Brassicaceae	Mustard Family
*Brassica tournefortii**	wild turnip
Lepidium lasiocarpum var. *lasiocarpum*	hariy podded pepper grass
Caryophyllaceae	Pink Family
Achyronychia cooperi	frost-mat
Ehretiaceae	Ehretia Family

Table 4
Botanical Species Detected in the IVS Transmission Line Corridor
(Continued)

Scientific Name	Common Name
Tiquilia palmeri	Palmer's tiquilia
Tiquilia plicata	plicate coldenia
Euphorbiaceae	Spurge Family
Chamaesyce polycarpa	sand mat
Ditaxis neomexicana	common ditaxis
Fabaceae	Legume Family
Dalea mollissima	hairy dalea
Prosopis glandulosa	mesquite
Psorothamnus emoryi	dye plant
Psorothamnus schottii	indigobush
Psorothamnus spinosus	smoke tree
Rafinesquia neomexicana	desert chicory
Stephanomeria pauciflora	wire lettuce
Fouquieriaceae	Ocotillo Family
Fouquieria splendens ssp. *splendens*	ocotillo
Hydrophyllaceae	Waterleaf Family
Phacelia crenulata var. *minutiflora*	notch-leaved phacelia
Krameriaceae	Rhatany Family
Krameria grayi	white rhatany
Nyctaginaceae	Four O-clock Family
Abronia villosa var. *villosa*	hairy sand-verbena
Allionia incarnata	trailing windmills
Onagraceae	Evening-Primrose Family
Camissonia boothii	bottlebrush primrose
Camissonia brevipes var. *brevipes*	golden sun cup
Camissonia claviformis spp. *peirsonii*	brown-eyed evening primrose
Oenothera deltoides ssp. *deltoides*	devil's lantern
Orobanchaceae	Broom-Rape Family
Orobanche cooperi	pine broom-rape
Plantaginaceae	Plantain Family
Plantago ovata	wooly plantain
Polygonaceae	Buckwheat Family
Chorizanthe brevicornu	brittle spineflower
Chorizanthe rigida	rigid spineflower

Table 4
Botanical Species Detected in the IVS Transmission Line Corridor
(Continued)

Scientific Name	Common Name
Eriogonum deserticola	dune buckwheat
Eriogonum inflatum	desert trumpet
Portulacaceae	Purselane Family
Calandrinia ambigua	calandrinia
Rafflesiaceae	
Pilostyles thurberi (CNPS List 4.3)	Thurber's pilostyles
Solanaceae	Nightshade Family
Lycium brevipes var. *brevipes*	desert-thorn
Tamaricaceae	Tamarisk Family
*Tamarix aphylla**	athel
*Tamarix ramosissima**	Mediterranean tamarisk
Viscaceae	Mistletoe Family
Phoradendron californicum	desert mistletoe
Zygophyllaceae	Caltrop Family
Larrea tridentata	creosote
*Tribulus terrestris**	puncture vine

*non-native

Table 5
Special Status Plant Species Occurring or Potentially Occurring on the IVS Site

SPECIES		SENSITIVITY STATUS			HABITAT ASSOCIATIONS AND BLOOMING PERIOD	POTENTIAL TO OCCUR	STATUS ON-SITE
COMMON NAME	SCIENTIFIC NAME	FEDERAL	STATE	CNPS			
Chaparral sand-verbena	*Abronia villosa var. aurita*	None	None	List 1B.1	This annual herb occurs in chaparral and coastal scrub in sandy areas from 80-1600m. Blooms January –September.	Moderate potential	This species was not detected within the Project area during the 2007, 2008 rare plant surveys, and was not detected during the first round of spring surveys in 2010.
Jacumba milk-vetch	*Astragalus douglasii var. perstrictus*	BLM Sensitive	None List	1B.2	This perennial herb occurs in chaparral, cismontane woodland and valley and foothill grassland. It is associated with stony hillsides and gravelly or sandy flats in open oak woodland from 900-1370m. Blooms April – June.	Low Potential	This species was not detected within the Project area during the 2007, 2008 rare plant surveys, and was not detected during the first round of spring surveys in 2010.

Table 5
Special Status Plant Species Occurring or Potentially Occurring on the IVS Site
(Continued)

SPECIES		SENSITIVITY STATUS			HABITAT ASSOCIATIONS AND BLOOMING PERIOD	POTENTIAL TO OCCUR	STATUS ON-SITE
COMMON NAME	SCIENTIFIC NAME	FEDERAL	STATE	CNPS			
Harwood's milk-vetch	*Astragalus insularis var. harwoodii*	None	None	List 2.2	This annual herb occurs in sand and gravelly desert dune areas from 0-710 m. Blooms January – May.	High potential	This species was not detected within the Project area during the 2007, 2008 rare plant surveys, and was not detected during the first round of spring surveys in 2010.
Little-leaf elephant tree	*Bursera microphylla*	None	None	List 2.3	This tree occurs in Sonoran desert scrub, It occurs on hillsides, washes, canyon sides and rocky sites from 200-700m. Blooms June-July.	Low potential	This species was not detected within the Project area during the 2007, 2008 rare plant surveys, and was not detected during the first round of spring surveys in 2010.
Pink fairy-duster	*Calliandra eriophylla*	None	None	List 2.3	This perennial shrub occurs in Sonoran desert scrub in sandy or rocky sites from 120-1500m. Blooms January - March	Moderate potential	This species was not detected within the Project area during the 2007, 2008 rare plant surveys, and was not detected during the first round of spring surveys in 2010.

Table 5
Special Status Plant Species Occurring or Potentially Occurring on the IVS Site
(Continued)

SPECIES		SENSITIVITY STATUS			HABITAT ASSOCIATIONS AND BLOOMING PERIOD	POTENTIAL TO OCCUR	STATUS ON-SITE
COMMON NAME	SCIENTIFIC NAME	FEDERAL	STATE	CNPS			
Emory's crucifixion-thorn	*Castela emoryi*	None	None	List 2.3	This shrub occurs in Sonoran desert scrub, playas, and on gravelly soils from 90-670 m. Blooms June - July	Moderate potential	This species was not detected within the Project area during the 2007, 2008 rare plant surveys, and was not detected during the first round of spring surveys in 2010.
Flat-seeded spurge	*Chamaesyce platysperma*	BLM Sensitive	None	List 1B.2	This annual herb occurs in desert dunes and Sonoran Desert scrub with sandy soil. Blooms February-September.	Moderate potential	This species was not detected within the Project area during the 2007, 2008 rare plant surveys, and was not detected during the first round of spring surveys in 2010.
San Diego button-celery	*Eryngium aristulatum* var. *parishii*	USFWS Endangered	CDFG Endangered	List 1B.1	This annual or perennial herb occurs in vernal pools, coastal scrub, valley and foothill grasslands. Blooms April-June.	Very low potential	This species was not detected within the Project area during the 2007, 2008 rare plant surveys, and was not detected during the first round of spring surveys in 2010.

Table 5
Special Status Plant Species Occurring or Potentially Occurring on the IVS Site
(Continued)

SPECIES		SENSITIVITY STATUS			HABITAT ASSOCIATIONS AND BLOOMING PERIOD	POTENTIAL TO OCCUR	STATUS ON-SITE
COMMON NAME	SCIENTIFIC NAME	FEDERAL	STATE	CNPS			
Utah vine milkweed	*Cynanchum utahense*	None	None	List 4.2	This perennial herb occurs in Mojave desert scrub and Sonoran desert scrub from 150-1435m. Blooms April –June.	Present	Species was detected during spring 2008 and 2010 surveys.
Annual rock-nettle	*Eucnide rupestris*	None	None	List 2.2	This annual herb occurs in Sonoran desert scrub on rock talus substrate from 500-600m. Blooms December-April.	Low potential	This species was not detected within the Project area during the 2007, 2008 rare plant surveys, and was not detected during the first round of spring surveys in 2010.
Curly herissantia	*Herissantis crispa*	None	None	List 2.3	This annual or perennial herb occurs in Sonoran Desert scrub from 700-725m. Blooms August-September.	Low potential	This species was not detected within the Project area during the 2007, 2008 rare plant surveys, and was not detected during the first round of spring surveys in 2010.

Table 5
Special Status Plant Species Occurring or Potentially Occurring on the IVS Site
(Continued)

SPECIES		SENSITIVITY STATUS			HABITAT ASSOCIATIONS AND BLOOMING PERIOD	POTENTIAL TO OCCUR	STATUS ON-SITE
COMMON NAME	SCIENTIFIC NAME	FEDERAL	STATE	CNPS			
Mexican hulsea	*Hulsea mexicana*	None	None	List 2.3	This annual herb occurs in chaparral, Sonoran desert scrub (alluvial fan) in sandy substrates from 0-100m. Blooms March-May.	Low potential.	This species was not detected within the Project area during the 2007, 2008 rare plant surveys, and was not detected during the first round of spring surveys in 2010.
Baja California ipomopsis	*Ipomopsis effusa*	None	None	List 2.1	This perennial herb occurs in chaparral, pinyon and juniper woodlands, and Sonoran desert scrub on rocky or gravelly soil from 100 to 1,200 m.	Moderate potential	This species was not detected within the Project area during the 2007, 2008 rare plant surveys, and was not detected during the first round of spring surveys in 2010.
Slender-leaved ipomopsis	*Ipomopsis tenuifolia*	None	None	List 2.3	This perennial herb occurs in chaparral pinyon and juniper woodlands, and Sonoran desert scrub on rocky or gravelly soils from 100-1200m. Blooms March-May	Moderate potential	This species was not detected within the Project area during the 2007, 2008 rare plant surveys, and was not detected during the first round of spring surveys in 2010.

Table 5
Special Status Plant Species Occurring or Potentially Occurring on the IVS Site
(Continued)

SPECIES		SENSITIVITY STATUS			HABITAT ASSOCIATIONS AND BLOOMING PERIOD	POTENTIAL TO OCCUR	STATUS ON-SITE
COMMON NAME	SCIENTIFIC NAME	FEDERAL	STATE	CNPS			
Pygmy lotus	*Lotus haydonii*	None	None	List 1B.3	This perennial herb occurs in Sonoran desert scrub, pinyon and juniper woodlands from 100-1200m. Blooms March-May.	Low potential;	This species was not detected within the Project area during the 2007, 2008 rare plant surveys, and was not detected during the first round of spring surveys in 2010.
Mountain Springs bush lupine	*Lupinus excubitus* var. *medius*	None	None	List 1B.3	This perennial shrub occurs in coastal scrub and Sonoran desert scrub from 425 to 1370m. Blooms March-May	Low potential	This species was not detected within the Project area during the 2007, 2008, and currently not detected during the first round of spring surveys in 2010.
Parish's desert-thorn	*Lycium parishii*	None	None	List 2.3	This perennial shrub occurs in coastal scrub and Sonoran desert scrub from 300-1370m. Blooms March-April	Low potential	This species was not detected within the Project area during the 2007, 2008, and currently not detected during the first round of spring surveys in 2010.

Table 5
Special Status Plant Species Occurring or Potentially Occurring on the IVS Site
(Continued)

SPECIES		SENSITIVITY STATUS			HABITAT ASSOCIATIONS AND BLOOMING PERIOD	POTENTIAL TO OCCUR	STATUS ON-SITE
COMMON NAME	SCIENTIFIC NAME	FEDERAL	STATE	CNPS			
Brown turbans	*Malperia tenuis*	None	None	List 2.3	This annual herb occurs in Sonoran desert scrub with sandy soil from 15-335m. Blooms March-April.	High potential	This species was not detected within the Project area during the 2007, 2008 rare plant surveys, and was not detected during the first round of spring surveys in 2010.
Hairy stickleaf	*Mentzelia hirsutissima*	None	None	List 2.3	This annual herb occurs in Mojavean desert scrub from 700-1160m. Blooms March-May.	Moderate potential	This species was not detected within the Project area during the 2007, 2008 rare plant surveys, and was not detected during the first round of spring surveys in 2010.
Creamy blazing star	*Mentzelia tridentata*	None	None	List 1B.3	This annual herb occurs in Mojavean desert scrub from 700-1160m. Blooms March-May.	Low potential	This species was not detected within the Project area during the 2007, 2008 rare plant surveys, and was not detected during the first round of spring surveys in 2010.

Table 5
Special Status Plant Species Occurring or Potentially Occurring on the IVS Site
(Continued)

SPECIES		SENSITIVITY STATUS			HABITAT ASSOCIATIONS AND BLOOMING PERIOD	POTENTIAL TO OCCUR	STATUS ON-SITE
COMMON NAME	SCIENTIFIC NAME	FEDERAL	STATE	CNPS			
Slender cottonheads	*Nemacaulis denudata var. gracilis*	None	None	List 2.2	This annual herb occurs in coastal dunes, desert dunes, Sonoran desert scrub form -50 to 400 meters. Blooms April-May.	Moderate potential	This species was not detected within the Project area during the 2007, 2008 rare plant surveys, and was not detected during the first round of spring surveys in 2010.
Thurber's pilostyles	*Pilostyles thurberi*	None	None	List 2.2	This stem parasite on *Psorothamnus emoryi* occurs in Sonoran desert scrub on sandy alluvial plains and sandstone talus from -50 to 365m. Blooms January.	Present	Species was detected during spring 2010 surveys.

Table 5
Special Status Plant Species Occurring or Potentially Occurring on the IVS Site
(Continued)

SPECIES		SENSITIVITY STATUS			HABITAT ASSOCIATIONS AND BLOOMING PERIOD	POTENTIAL TO OCCUR	STATUS ON-SITE
COMMON NAME	SCIENTIFIC NAME	FEDERAL	STATE	CNPS			
Desert spike-moss	*Selaginella eremophila*	None	None	List 2.2	This rhizomatous perennial herb occurs in Sonoran desert scrub, shaded sites, gravelly soils and crevices or amoung rocks from 300-2425m. Blooms June (rarely May-July).	Low potential	This species was not detected within the Project area during the 2007, 2008 rare plant surveys, and was not detected during the first round of spring surveys in 2010.
Dwarf germander	*Teucrium cubense ssp. depressum*	None	None	List 2.2	This annual herb occurs in desert dunes, Sonoran desert scrub and playas form 45 to 400 meters.	Moderate potential	This species was not detected within the Project area during the 2007, 2008 rare plant surveys, and was not detected during the first round of spring surveys in 2010.
Orcutt's woody-aster	*Xylorhiza orcuttii*	None	None	List 1B.2	This perennial herb occurs in Sonoran desert scrub from 20-365m. Blooms March-April.	Low potential	This species was not detected within the Project area during the 2007, 2008 rare plant surveys, and was not detected during the first round of spring surveys in 2010.

LEGEND

Survey Grid

- Less than or equal to 95 acres
- 95 - 110 acres
- Project Boundary (6465 acres)
- Laydown Area
- N.A.P. Not A Part (Owned by Others)
- Proposed 750-MW/230-kV Transmission Line (2.6 Miles On-site, 7.7 Miles Off-site) T-Line 100-foot ROW (93 acres, Off-site)
- Proposed Waterline (3.8 Miles On-site, 8 Miles Off-site) Waterline 10-foot ROW (10 acres Off-site)
- Existing Transmission Line
- Existing SDG&E Imperial Valley Substation
- Project Roads (3 acres Off-site)

SOURCES: USGS (100K topo, various dates); Stantec 30% Design (project features, 2009); RMT (proposed T-line, 10/2009); URS (waterline, FTHL survey plots 2008); Tiger (U.P. Railroad,2008); ESRI (roads 2009); POWERmap www.powermap.platts.com 2009 Platts, A Division of The McGraw-Hill Companies (existing t-lines).

BOTANY SURVEY GRID
IMPERIAL VALLEY SOLAR

URS

0.5 0 0.5 1 Miles

SCALE: 1" = 1 Mile(1:63,360)

SCALE CORRECT WHEN PRINTED AT 11X17

CREATED BY: CL	DATE: 3-23-10	FIG. NO: 1
PM: AL	PROJ. NO: 27657105.00801	

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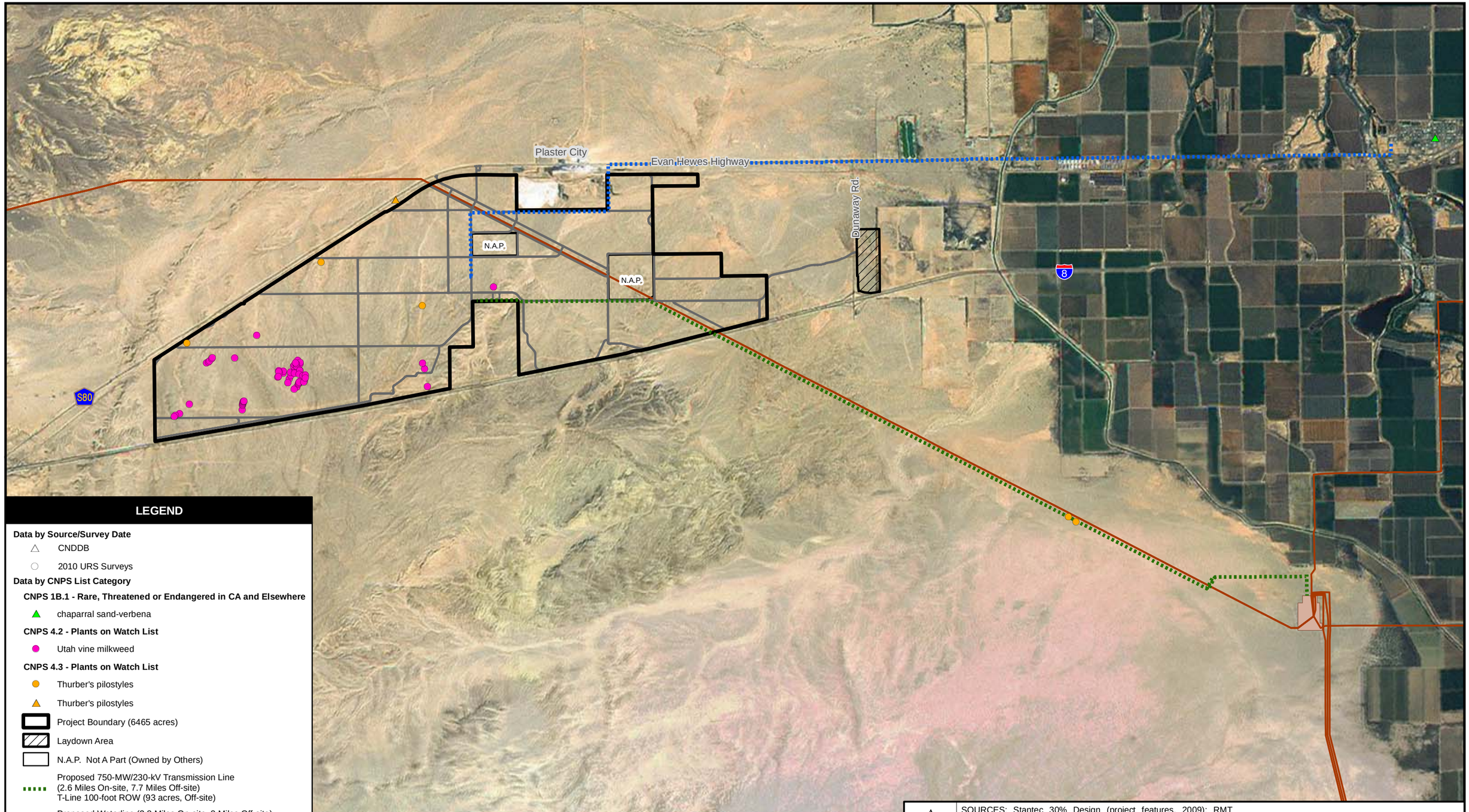

LEGEND

Data by Source/Survey Date

- △ CNDDB
- ○ 2010 URS Surveys

Data by CNPS List Category

CNPS 1B.1 - Rare, Threatened or Endangered in CA and Elsewhere

- ▲ chaparral sand-verbena

CNPS 4.2 - Plants on Watch List

- ● Utah vine milkweed

CNPS 4.3 - Plants on Watch List

- ● Thurber's pilostyles
- ▲ Thurber's pilostyles
- Project Boundary (6465 acres)
- Laydown Area
- N.A.P. Not A Part (Owned by Others)
- Proposed 750-MW/230-kV Transmission Line (2.6 Miles On-site, 7.7 Miles Off-site) T-Line 100-foot ROW (93 acres, Off-site)
- Proposed Waterline (3.8 Miles On-site, 8 Miles Off-site) Waterline 10-foot ROW (10 acres Off-site)
- Proposed Waterline 10ft Construction ROW
- Existing Transmission Line
- Existing SDG&E Imperial Valley Substation
- Project Roads (3 acres Off-site)

SOURCES: Stantec 30% Design (project features, 2009); RMT (proposed T-line, 1/2010); Tiger (U.P. Railroad,2008); ESRI (aerial 2005, roads 2009); POWERmap www.powermap.platts.com 2009 Platts, A Division of The McGraw-Hill Companies (existing t-lines); Nolte (waterline 2/2010); CNDDB (sensitive species 3/2010); URS surveys (2/2010).

EARLY SPRING BOTANY RESULTS IMPERIAL VALLEY SOLAR

URS

0.5 0 0.5 1 Miles

SCALE: 1" = 1 Mile(1:63,360)

SCALE CORRECT WHEN PRINTED AT 11X17

CREATED BY: CL	DATE: 4-01-10	FIG. NO: 2
PM: AL	PROJ. NO: 27657105.00801	

Path: G:\gis\projects\1577\22238980\mxd\Biology\Botany\PlantSpecies_2010Survey.mxd, 04/05/10, camille_lill

URS

Sundeep Amin

Biologist/Restoration Ecologist

Areas of Expertise

Habitat Restoration and Mitigation Monitoring
Sensitive Species Surveys and Habitat Assessment
Vegetation Mapping and Botanical Surveys
Biological Assessments
Technical Report Writing

Years of Experience

With URS: 2 Years
With Other Firms: 4 Years

Education

BS / 1998/ Ecology, Behavior, and Evolution / University of California, San Diego

Blunt-nosed leopard lizard Identification Workshop by the Wildlife Society (2009)

Wetland Delineation Workshop by Wetland Training Institute (2008)

Flat-tailed horned lizard Identification Training by the BLM (2008)

Desert Tortoise Handling Workshop by Desert Tortoise Council (2007)

Registration/Certification

California Department of Fish and Game (CDFG) Scientific Collectors Permit #SC-009178

CDFG Rare, Threatened, and Endangered Plant Voucher Collecting Permit #09012.

Professional Associations

California Native Plant Society, Member

Society for Ecological Restoration, California, Member

Wildlife Society, Member

Overview

Sundeep Amin is a biologist/restoration ecologist with over four years of professional experience working as a biologist, restoration ecologist, project manager, and/or project crew supervisor on an assortment of projects throughout Southern California, including projects in Nevada and Arizona. His main areas of expertise include habitat restoration, mitigation monitoring, botanical surveys, biological constraints analyses, and sensitive species surveys (floral and faunal). Mr. Amin is also experienced in technical report writing, client/agency interaction, and project management. He has worked on projects for a variety of clients including all branches of the military, private developers, utility companies, and local, State, and Federal agencies. He is familiar with State and Federal regulations such as the California Environmental Quality Act (CEQA), National Environmental Policy Act (NEPA), Federal and California Endangered Species Acts (FESA and CESA), Migratory Bird Treaty Act (MBTA), and Natural Community Conservation Plans (NCCP).

Project Experience

Vegetation Mapping and Botanical Surveys

Otay Land Company LLC, Parcel D – Jamul CA. Field biologist conducting protocol Quino checkerspot butterfly (*Euphydryas editha quino*) presence/absence surveys and rare plant surveys on potential mitigation bank land. Surveys yielded several new locations for Quino checkerspot and sensitive plant species. **(2009-Present)**

Hospital and Exchange Projects at Marine Corps Base, Camp Pendleton – Oceanside, CA. Field biologist conducting protocol thread-leaved brodiaea (*Brodiaea filifolia*) presence/absence surveys. Duties also included rare plant surveys, vegetation mapping, small mammal trapping for pacific pocket mouse (*Perognathus longimembris pacificus*), assisting in wetland delineation and technical report preparation. **(2009-Present)**

Otay Land Company LLC, Parcel B – Otay Mesa, CA. Field biologist assisting with Otay tarplant surveys (*Deinandra conjugens*), protocol Quino checkerspot butterfly surveys, and burrowing owl (*Athene cunicularia*) surveys. **(2009)**

Kinder Morgan California-to-Nevada (Cal-Nev) Pipeline, Mojave Desert of California and Nevada. Field biologist conducting desert tortoise presence/absence and rare plant surveys over several different sections of a 233-mile fuel pipeline project from Colton, CA to Las Vegas, NV. Other duties included leading desert tortoise survey crews, assisting

with least Bell's vireo surveys, assisting with jurisdictional delineations, and assisting with preparation of associated technical documents. **(2008)**

Solar Power Plant AFC, Imperial County, CA. Field biologist conducting rare plant and flat-tailed horned lizard surveys in support of an Application for Certification for an 800MW thermal generating facility covering 7,000 acres in Imperial County. **(2008)**

Lytle Creek RAFSS and AFSS Analysis, Los Angeles, San Bernardino, Riverside, Orange, and San Diego Counties. Biologist responsible for the assessment of remaining Riversidean and regular Alluvial fan Sage Scrub (RAFSS and AFSS) along every major river and waterway alluvial fans complexes in search of potential off-site mitigation. Duties included searching for areas potentially containing alluvial fan scrub habitat, assessing potential areas (including extensive vegetation mapping), and creating a table describing areas that are both still hydrologically active and potentially purchasable. **(2006-2008)**

Boulder Ridge, Moreno Valley, CA. Biologist assisting with vegetation mapping, Phase I, II, and III Burrowing Owl (BUOW) surveys, and production of a MSHCP Phase I and II BUOW report for an approximately 220-acre project site in Western Riverside County. Also assisted with the completion of a Jurisdictional Delineation. **(2007)**

City of Lake Forest, Lake Forest, CA. Biologist, conducting sensitive plant surveys, and performing California gnatcatcher surveys with a permitted biologist. Project included documenting natural resources on a parcel of land owned by the City proposed to be turned into a sports park. **(2007)**

Lytle Creek Mitigation Surveys, **San Bernardino, CA.** Biologist providing support to the project small mammal biologist with regards to conducting vegetation surveys over k-rat mitigation islands in Lytle Creek Wash. Duties included performing modified point-intercept transects, keeping track of data by grid, and overlaying data on a map of the islands to be used in conjunction with small mammal trapping data to determine in any correlation exists between certain vegetation and k-rat abundance. **(2006-2007)**

Mammoth Mountain, Mammoth Lakes, CA. Biologist assisting with re-assessment of vegetation and potentially jurisdictional areas on Mammoth Mountain Ski resort. Work involved vegetation mapping of high altitude plant communities from Montane to alpine climate zones. **(2007)**

San Manuel General Plan, San Manuel, AZ. Biologist working as part of a team to map the vegetation of over 25,000 acres of various Sonoran Desert habitat, including the identification of potentially jurisdictional water features for later assessment. Other duties included writing sections of a long-term river management plan to address issues with the x mile portion of the San Manuel River that crosses the site. The work was commissioned by BHP Billiton in anticipation of the closing of the local

copper mine, and subsequent sale of land to expand the town of San Manuel, Arizona. **(2007)**

Canyon Crest, Chino hills, CA. Biologist conducting a series of sensitive plant surveys in chaparral and coastal sage scrub habitats during the various blooming periods of potentially occurring sensitive plant species. **(2007)**

Ortega PBR, Santa Ana Mountains, CA. Biologist assisting with sensitive plant surveys in dense chaparral and riparian communities over two seasons for a water pipeline project. **(2006-2007)**

Habitat Restoration and Mitigation Monitoring

Gregory Canyon Landfill, Pala, CA. Restoration ecologist assisting with the preparation of a Habitat Resource and Restoration Management Plan for a 1,700 acre project site in northern San Diego County. **(2008-Present)**

San Onofre Nuclear Generating Station (SONGS) Steam Generator Replacement Project, San Onofre, CA. Restoration ecologist responsible for the preparation of a Revegetation Plan as mitigation for impacts created by the transport of replacement steam generators along the northern San Diego County coastline on Marine Corps Base Camp Pendleton and San Onofre State Park property. **(2008-Present)**

City of San Marcos, U-Boot Parcel, San Marcos, CA. Restoration ecologist responsible for preparing a Riparian Habitat Enhancement and Creation Plan consisting of the creation/enhancement of eight total acres of riparian and wetland habitat. **(2008-Present)**

Marine Corps Air Station at Miramar, San Diego, CA. Restoration ecologist responsible for annual and semi-annual monitoring and annual monitoring report preparation for an erosion control and revegetation project at two sites located within Marine Corps Air Station Miramar grounds. Also responsible for client and landscape subcontractor coordination. **(2008-Present)**

Lakeside Land Development Co., Lakeside, CA. Restoration ecologist responsible for conducting qualitative and quantitative monitoring visits and preparing annual monitoring reports for a San Diego River Improvement Project consisting of a major floodplain restoration project on the San Diego River. **(2008-Present)**

Dana Point Headlands, Dana Point, CA. Restoration ecologist responsible for conducting qualitative and quantitative monitoring and reporting. Coastal California gnatcatcher surveys were also conducted to determine use of restored area by the species. Project consists of coastal sage scrub restoration along several coastal bluffs above Dana Point Harbor. Coastal California gnatcatchers have already been observed throughout the restoration/enhancement areas. **(2008-present)**

Palmer Investments, Los Valles Country Club, Hasley Canyon, CA. Restoration ecologist/project manager involved from submission of proposal to implementation of mitigation. This project covers ~200 acres in the Santa Clarita area and involves the building of an Arnold Palmer Golf Course and associated housing pads. Mitigation requirements include nesting bird surveys, reptile relocation surveys, oak tree surveys and mitigation plan creation, and oversight of ephemeral riparian mitigation creation along Hasley Canyon Creek. **(2006-2008)**

HART Unified School District, Hasley Canyon, CA. Restoration ecologist/project manager providing consultation regarding appropriate site mitigation requirements. Duties included re-assessing the project site, preparing a conceptual habitat mitigation and monitoring plan, and inspecting and assessing several potential mitigation sites in northern Los Angeles County. **(2006-2008)**

Centex Homes, Hawks Pointe, La Mirada, CA. Restoration ecologist responsible for annual and semi-annual monitoring and reporting. Other tasks performed included site maintenance coordination with the landscape contractor and California gnatcatcher mapping throughout the restoration area. This project involved the creation of CSS in and around a housing development within an urban area. California gnatcatchers were routinely heard throughout the restoration site. **(2006-2008)**

Lennar Communities, Lytle Creek, San Bernardino, CA. Biologist responsible for focused scalebroom (*Lepidospartum squamatum*) surveys, scalebroom removal oversight, removal monitoring, and letter report preparation. Location and appropriate removal of scalebroom is essential prior to building homes due to the ability of scalebroom to grow into and crack foundations. **(2006)**

Camp Bloomfield, Malibu, CA. Biologist performing vegetation mapping, specifically mapping of all trees on the project site in order to determine potential impacts and appropriate mitigation. **(2006)**

West Valley Water District, San Bernardino, CA. Biologist assisting with the vegetation mapping and resource assessment of land needed for the installation of a water treatment plant, water reservoir, and associate pipelines near Lytle Creek Wash. **(2006)**

Biological Assessments

Hasley Canyon, Hasley Canyon, CA. Project manager/biologist/ restoration ecologist responsible for writing winning proposal and subsequent supplemental proposals for a CEQA-level biological assessment, formal jurisdictional determination/delineation, oak tree survey, and full suite of sensitive species surveys (least Bell's vireo, southwestern willow flycatcher, arroyo toad, and California gnatcatcher) on a 275-acre relatively undisturbed project site in northern Los Angeles County. Biological work included assessing land, preparing the biological

assessment, assisting with the oak tree survey, assisting with the jurisdictional determination, and survey coordination. Project management tasks included routine meetings with the client and other professionals hired to perform the due diligence work required to apply for the appropriate permits that would be required. **(2006-2008)**

Rancho Vistoso Xero-Riparian Habitat Assessment, Oro Valley/Tucson, AZ. Biologist providing a habitat assessment and technical report for a parcel of land owned by the client in order to determine the boundaries of various levels of xero-riparian habitat in accordance with city code to allow maximum use of the land. **(2007)**

690 Laguna Beach, Laguna Beach, CA. Biologist providing a biological assessment and accompanying technical report for the permitting of a private home. Specific issues included dealing with stringent and time consuming reporting standards while still providing cost effective service. **(2007)**

RMC Lancaster, Lancaster, CA. Biologist responsible for the vegetation mapping along a proposed natural gas pipeline through developed and undeveloped areas. Duties also included identifying potential constraints, and the preparation of a biological constraints analysis. **(2007)**

Murrieta 180, Murrieta, CA. Biologist assisting with the implementation of the California Rapid Assessment Method (CRAM) analysis of an impacted disturbed wetland and potential vernal pool mitigation site. Application of the CRAM analysis results in each analyzed feature being assessed over a number of different criteria, with the ultimate goal of outputting a score, which can be compared to any other feature regardless of differences. **(2006)**

KB Homes, The Cove, Hemet, CA. Restoration ecologist/assistant project manager responsible for oversight of vernal pool restoration on a housing development currently constructing homes. Other tasks included applying for assorted agency permits regarding the installation of water supply pipelines, and Native American artifact issues. **(2006-2008)**

Vista Unified School District Rancho Guajome Wetlands Creation, Vista, CA. Restoration ecologist responsible for mitigation implementation and monitoring. The project involved the creation of an approximately five acre wetland complex to mitigate for the building of a nearby elementary school. **(2005-2006)**

MCAS Miramar Coastal Sage Scrub Restoration, San Diego, CA. Restoration ecologist in charge of crew supervision and monitoring. Work consisted of exotic species control and vegetation monitoring of over 150 transects in support of coastal sage scrub on MCAS Miramar. **(2004-2006)**

Fort Irwin Army Base Revegetation and Erosion Control, Fort Irwin, CA. Project biologist responsible for routine monitoring and plant/erosion control assessment. The project involved the revegetation of off-road areas on Fort Irwin Army base. A large portion of the project involved developing erosion control strategies using vegetation and other erosion control strategies. **(2005-2006)**

Organ Pipe National Monument Border Fence Installation Plant Salvage and Restoration, Lukeville, AZ. Restoration ecologist and assistant project manager responsible for quarterly monitoring of restoration sites along the US-Mexico border. Duties included Sonoran Desert plant species seed collection and dispersal, exotic plant control, inspection of salvaged plants, and creation of status reports. **(2004-2006)**

Las Vegas Valley Water District Native Plant Salvage, Pahrump and Las Vegas NV. Restoration ecologist and crew supervisor overseeing the salvage of western honey mesquite trees and several thousand native shrubs for transplant into the Las Vegas Springs Preserve. Over one hundred mesquite trees ranging from a few feet to over fifteen feet were successfully boxed and moved. Salvaged native shrubs included creosote bush, burrow brush, ephedra, and several cacti and yucca species. **(2005-2006)**

Bureau of Land Management Las Vegas Buckwheat Salvage, Las Vegas, NV. Restoration ecologist and crew leader in charge of the salvage of one thousand sensitive Las Vegas buckwheat (*Eriogonum corymbosum*) shrubs. Salvage of shrubs was initiated in order to preserve a large population of Las Vegas Buckwheat that would otherwise have been lost to development. **(2005-2006)**

Michelle Balk

Botanist

SUMMARY

Ms. Balk has over eight years of experience as a biological consultant in California. Project experience includes general and sensitive floral and wildlife surveys, vegetation mapping, wetlands delineation and permitting, mitigation monitoring, construction monitoring, and environmental document preparation. She has also participated in the development of habitat conservation plans pursuant to Section 10 of the Federal Endangered Species Act, and frequently teaches botany classes and workshops for the California Native Plant Society and Rancho Santa Ana Botanic Gardens.

EDUCATION

- M.S., Biology with Ecology and Evolution emphasis, University of Akron (1999)
- B.S., Zoology, Iowa State University (1997)

CERTIFICATIONS

- CDFG Rare, Threatened, and Endangered Plant Voucher Collection Permit
- Balk Biological Consulting has been certified as a Small Business Enterprise through the Coalition of Southern California Public Agencies and as a Small Business/Microbusiness through the State of California Department of General Services. The company is also registered in the U.S. Government's Central Contractor Registration (CCR) database as a Small Business and a Woman-Owned business.

SELECT RELEVANT PROJECT EXPERIENCE

Project Biologist/Botanist, State Route 79 Realignment Project, Riverside County Transportation Commission, Cities of Hemet and San Jacinto, CA; and County of Riverside, CA. March – September 2006. Performed wetlands delineations and surveyed for rare upland and wetland sensitive plant species along alternatives for proposed roadway realignment through the cities of Hemet and San Jacinto, CA.

Project Botanist, Mid-County Parkway, County of Riverside (Lake Mathews-Estelle Mountain Reserve and adjacent privately-owned lands), California. February – May 2005. Served as team leader for sensitive plant surveys on publicly- and privately-owned parcels within potential roadway alignment. Verified/updated vegetation mapping for project site.

Project Biologist, Pole Maintenance Project/Bark Beetle Project, Southern California Edison, San Bernardino and San Jacinto Mountains, San Bernardino and Riverside Counties, California. **2003 – 2006.** Conducted botanical surveys and habitat assessments for sensitive plants at pole replacement locations and along electric lines at numerous locations in the San Bernardino and San Jacinto Mountains and the Mojave Desert. Coordinated with tree removal contractors regarding least biologically impactive methods of tree removal.

Project Botanist, Murrieta Hills Project, Riverside County, California. Spring - Summer 2008. Performed rare plant surveys for Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Criteria Area Species Survey Area (CASSA) and Narrow-endemic Plant Species Survey Area (NEPSSA) species and other sensitive species across a 1,280-acre survey area.

Project Botanist, Wild Rose Reservoir II Project, Lee Lake Water District, County of Riverside near City of Corona, California. November - December 2004. Prepared biological technical reports, including vegetation mapping and assessment of habitat for rare plants, for California Environmental Quality Act documentation.

Project Botanist, Parcel D Project, Otay Land Company, County of San Diego, California. 2009. Performed surveys for a variety of rare plant species on mitigation site in the foothills of the Cuyamaca Mountains.

Project Biologist/Botanist, Fanita Ranch Project, Santee, California, **Barratt American, Inc. 2004-2006.** Performed vegetation mapping, wetlands delineation, rare plant surveys, and Quino checkerspot butterfly surveys on 2,000 acre property and potential mitigation site.

Project Biologist, Villages of San Jacinto Project, D.R. Horton, San Jacinto, California. March – June 2005. Performed vegetation mapping, wetlands delineation, and rare plant surveys on 475-acre property. Prepared biological technical report for California Environmental Quality Act documentation.

Project Botanist, Marine Corps Base Camp Pendleton, County of San Diego, California. **2005.** Conducted rare plant surveys for Pendleton button celery (*Eryngium pendletonensis*) on 246 acres.

Project Botanist, St. Jerome's Church Project, Catholic Diocese, City of San Diego, California. 2001-2005. Performed floristic surveys of vernal pools for approximately 18-acre proposed church site.

Project Biologist/Botanist, State Route 125 South, California Department of Transportation, City of San Diego, California. 2004. Conducted rare plant surveys and Quino checkerspot butterfly surveys for mitigation site alternatives.

Project Biologist/Botanist, Village 3 Project, Otay Ranch Company, City of Chula Vista, California. 2003. Conducted vernal pool floristic surveys and rare plant surveys, including focused surveys for the federally-listed threatened and state-listed endangered Otay tarplant, on 263 acre site.

Project Botanist, Sorrento-Miramar Curve Realignment and Second Main Track Project, North County Transit District, City of San Diego, California. 2001. Conducted a focused plant survey for the CNPS List 1B Palmer's grapplinghook along the approximately 180-acre linear rail corridor.

Project Botanist, Nickel Creek Project, Ramona, California. 2004. Performed rare plant mapping for the CNPS List 1B smooth tarplant for 14-acre multi-family residential development on the Santa Maria River.

Project Biologist/Botanist, High Meadow Ranch Residential Development Project, Vicar Ventures, LLC, Community of Lakeside, County of San Diego, California. **2004 – 2006.** Performed wetlands delineation and prepared wetlands permit applications, including conceptual mitigation plan, for 800-acre residential development project. Coordinated and negotiated with wetlands resource agencies and the U.S. Fish and Wildlife Service regarding sensitive species issues onsite.

CalNev Pipeline Expansion Project, Kinder Morgan Energy Partners, San Bernardino County, California, June – July 2009. Surveyed approximately 17 miles of proposed and existing petroleum pipeline alignment for late-blooming sensitive plants. Project site included sensitive areas of western San Bernardino County from the Cajon Pass in the north, along the Cajon Creek Wash in the San Bernardino National Forest, to approximately the City of Devore in the south. Project included visiting of reference populations of rare plants and coordinating with Forest Service staff.

Project Botanist, Trilobite Solar Energy Generating Project, Pacific Gas and Electric Company, San Bernardino County, California. March – June 2009. Served as crew leader in the performance of rare plant surveys and vegetation characterization for approximately 6,400-acre proposed solar energy generating site in the central Mojave Desert. Prepared botanical survey report describing results for inclusion into Application for Certification by the California Energy Commission.

Project Botanist, Ausra Carrizo Plain Solar Farm Project, San Luis Obispo County, California; Sterling Energy Solutions Solar 1, 2, 3, and 6 Projects; San Bernardino and Imperial Counties, California. March – June 2008. Performed rare plant surveys for proposed solar farm projects totaling approximately 40,000 acres. Project sites were located on the Carrizo Plains of San Luis Obispo County, west of the City of El Centro in Imperial County, and east of Barstow in San Bernardino County, California.

Project Botanist, Tejon Mountain Village Project, Kern and Los Angeles Counties, California. February – September 2007. Mapped vegetation and served as team leader for rare plant surveys on 28,000-acre proposed housing development project located in the Tehachapi Mountains of southern Kern and northern Los Angeles Counties.

OTHER RELEVANT EXPERIENCE

Co-instructor, "Rare Plants of Western San Diego County", February 2008; "Survey of the Sunflower Family (Asteraceae): Introduction to the Fall Bloomers", October 2005 and October 2006; "Survey of the Sunflower Family (Asteraceae): Introduction to the Spring Bloomers", March 2007; "Southern California Winter Plant Identification For Field Biologists", February 2006", Rare Plant Identification and Survey Techniques for Southern California", March 2006**.**

Participant, California Native Plant Society (CNPS) workshops: "Vegetation Mapping", October 13-15, 2009, and "Cyperaceae", July 22-24, 2008; Jepson Herbarium workshops: "Poaceae (Grass family)" May 7-8, 2005; "Spring Flora across Kern County" May 6-9, 2004; "Summer Annuals and Fall-Blooming Shrubs of the Eastern Mojave Desert" September 2003; "Morphology and Identification of Flowering Plants" March, 2003.

Participant, "Basic Wetland Delineation" presented by the Wetland Training Institute, Inc. August 2-6, 2004.

Jessica Birnbaum

Biologist/Environmental Planner

Areas of Expertise

•Biological Assessments
•Protocol Surveys for Special-Status Plant and Wildlife Species
•Habitat Restoration
•Environmental Planning/Permitting
•Vegetation/Rare Plant Surveys
•Environmental Compliance
•Water Quality Sampling
•Endangered Species Surveys and Habitat Assessment
•Environmental Impact/Technical Reports
•Level II Blunt-Nosed Leopard Lizard Surveyor
•Wetland Delineation
•Construction Compliance and Monitoring
•GPS and GIS mapping

Years of Experience

With URS: 2 Years
With Other Firms: 3 Years

Education

MS/Natural Resources: Planning and Interpretation/2007/ Humboldt State University
BS/Biology/2002/Trinity College

Registration/Certification

CDFG Scientific Collecting Permit: SC-801043-02
Level II Surveyor: Blunt-nosed leopard lizard survey protocol.

Overview

Mrs. Birnbaum is a Biologist and Environmental Planner for URS' Santa Barbara office. Mrs. Birnbaum's position at URS involves botanical and wildlife surveys, endangered species habitat assessment, vegetation and stream monitoring, and habitat restoration.

Botanical Project Experience

Vegetation Restoration Monitoring, Santa Barbara, CA. Santa Barbara Airport Wetland Restoration Project, City of Santa Barbara, June 2008-Present: Assisted in restoration for 65 acres of wetland, coastal sage scrub, and riparian habitats. Monitoring program consisting of point-intercept transect and quadrat data collection and maintenance monitoring. Participates in native seed collection. Supports the production of annual reports detailing restoration success.

California Valley Solar Ranch Project, Carrizo Plain, San Luis Obispo County, March – September 2009: Led crew of 3-6 biologists surveying for special-status plant species on approximately 3,000 acre site and mapped vegetation communities. Personally authored the botanical survey report for submittal to SunPower and the County.

Nextlight's Antelope Valley Solar Ranch One Project EIR, Los Angeles County, CA, November 2008-Present: Drafted Biological Resources section of an EIR for a proposed PV solar generating facility in Antelope Valley, California. Key issues of concern included loss of wildflower field habitat, loss of foraging habitat for sensitive grassland birds, and the potential impact upon horned lizards, an endangered species. URS submitted the biota report, which contained botanical survey results, to County SEATAC. Assisted with botanical surveys and responding to comments (RTC) from SEATAC and LA County on Biota Report and EIR.

Urban Levee Geotechnical Evaluation Program in Woodland, CA, DWR, March 2008 – June 2008: DWR's geotechnical exploration, includes testing and analysis of state and federal levees. Mrs. Birnbaum monitored the drill crews to ensure that no sensitive biological resources are compromised. Survey efforts concentrate upon monitoring for giant garter snake as the levee area is considered ideal habitat for the species, as well as valley elderberry beetle through surveying elderberry shrubs, riparian brush rabbit, tri-colored blackbird, bank swallows and San Joaquin kit foxes.

California Emergency Levee Erosion Repair, Stockton and Sacramento, CA, for California Department of Water Resources, 2007 – 2008: Mrs. Birnbaum conducted biological field surveys, including for kit foxes and elderberry shrubs, for the Sacramento and American

Rivers in the central valley region. As part of this work, she located and protected sensitive species and habitats within levee reconstruction areas.

Professional Societies/Affiliates

California Botanical Society
California Native Plant Society

Specialized Training

2009: Blunt-Nosed Leopard Lizard Identification Workshop, Wildlife Society, Bakersfield, Ca
2009: Introduction to the Second Edition of the Manual of California Vegetation Workshop, CNPS, John Sawyer, Tod Keeler-Wolf, and Julie Evans, Yolo, Ca
2009: Measuring and Monitoring Plant Populations and Vegetation Workshop, California Native Plant Society 2009 Conservation Conference, John Willoughby, Sacramento, Ca
2008: Clean Water Act Regulatory Updates, presented by the Association of Environmental Professionals, Ventura, Ca

Languages

Basic conversational/written proficiency in French and Spanish.

Chronology

6/08- Present: **URS Corporation, Santa Barbara, CA**.
11/07 – 6/08: **URS Corporation, Sacramento, CA**.
01/05 – 08/07: **Masters of Science study, Humboldt State University**.
06/04 – 11/04: **Biological Technician, USDA Forest Service – Sierra Nevada Research Center, Quincy, CA**:
Conducted forest management research on the mixed conifer forests in Plumas National Forest of the Sierra Nevada Range. Researched the effects of fuels reduction and timber production on plant communities, performed tree and seedling measurements to quantify regeneration requirements, and conducted environmental assessments of forest stands. Delineated plant community locations and diversity.
06/03 – 10/03: Team Leader, Student Conservation Association – Seeds of Success, Prineville, Oregon:
Supervised a field biology crew in collecting native plant seeds. She determined which sites to visit to collect certain species, using global positioning system (GPS) technology for navigation. She coordinated collection efforts with the Bureau of Land Management (BLM).

Contact Information

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Jessica_birnbaum@urscorp.com

Caesara Botanical Consulting

CAESARA BRUNGRABER

Independent Contractor for Botany and Environmental Surveys

858-220-5674 San Diego, CA Chezziebr@gmail.com

EXPERIENCE SUMMARY

Mrs. Brungraber is a botanist and wildlife biologist with over 10 years of experience in native and non-native plant identification, habitat restoration, landscape design, and wildlife monitoring in several US states and two countries. She has more than three years of experience in wetland delineations, vernal pool vegetation assessments, vegetation mapping and plant community characterization, rapid assessment of plant populations, threatened and endangered plant surveys, rare plant surveys, biological statistics and analyses, animal identification, endangered and threatened (animal) species protocol surveys, and avian surveys. Most of her work focus is in southern California, but her world experience now includes Nepal.

Mrs. Brungraber has seven years of previous botanical experience working for her own company, Caesara Botanical Consulting, which she founded in 2002 as a sole proprietorship (under the name Caesara LLC in Connecticut). She has served not only as the operating manager of the company but also as the lead botanist for numerous projects, many of which followed a strict survey protocol. She has also been working closely with Camp Pendleton and contacts at the FWS to determine a possible new species or hybrid of the *Brodiaea* genus, which she found in May 2008. She has experience with jurisdictional wetlands and MS4 drainages, including field protocol (and the Arid West supplement) and JDR and EA document preparation.

Her knowledge of flora has allowed her to lead several projects, including wetland restoration for bioremediation and erosion control purposes, rare plant surveys, endangered species surveys (both coastal and desert flora), wetland delineations, the founding of her own company, and self funded travel to floral hot spots around the world. Mrs. Brungraber has a strong background in biological statistical analyses, experimental design, and environmental data collection techniques. These strengths allow for accurate and very thorough data collection, analysis, and reporting.

EDUCATION

M.S., 2007	University of California, Davis, CA; Major: Environmental Horticulture
B.S., B.A., 2004	Bucknell University, Lewisberg, PA; Major: Biology, Economics
Completed	Fairfield University, Fairfield, CT; focus: 1 year of physics
Completed	Boston University, School for Field Studies, Kenya, Africa; focus: wildlife management and socioeconomics

ADDITIONAL TRAINING AND CERTIFICATIONS

2008	California Fairy Shrimp – Permit in progress
2008	California gnatcatcher – Permit in progress
2008	Range safety officer, Camp Pendleton, CA
Current	RapidGate Access, Camp Pendleton, CA (registered company)

REPRESENTATIVE PROJECTS

Botany Work

Flora of Nepal, 2009. Assisted Tribhuvan University, Kathmandu, Nepal as a volunteer by documenting and collecting over 300 plant species in the Nepali Himalayan Mountains, from 2,000 to 17,775' feet in elevation. These photographs and my list will contribute to the Flora of Nepal publication. Future work on this project is expected.

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***Flowers of Nantucket*, 2009-current**. Beginning to compile photographs of all species on Nantucket, MA, to write a much needed comprehensive *Flowers* (non-key) of the island. This work will be done in conjunction with several non-profit agencies on the island.

Floral inventory of *Amelanchier nantucketensis* study site, Nantucket, MA, 2009. Walked transects as a solo volunteer through several acres of a designated study site for federally endangered *Amelanchier nantucketensis* and catalogued all flora found. This work contributes to the management plan for this area, run by the Nantucket Conservation Foundation.

Floral Inventory of Eel Point Conservation Area, Nantucket, MA, 2009. As a volunteer compiled a comprehensive floral inventory of a large coastal dune and salt marsh conservation area. This list included several locally endemic species as well as sensitive species *Polygonum glaucum*.

Coastal sage scrub restoration site evaluation for California gnatcatcher, 2009. Performed floral surveys, including transect lines and point data where necessary, in spring and fall on Camp Pendleton. Both a reference site and restoration site were surveyed, and invasive species removal at the restoration site was assessed. The restoration site is intended for California gnatcather habitat.

***Brodiaea filifolia* Inventory Project, Camp Pendleton, CA, 2009.** In spring 2009 acted as lead botanist for protocol surveys in search of the federally endangered plant *Brodiaea filifolia* in an 800 acre area of Camp Pendleton. Trained employees in the field on characteristics of the plant as well as habitat type and blooming season.

***Brodiaea filifolia* Clearance Project, Camp Pendleton, CA, 2009.** Acted as lead botanist for protocol surveys in search of the federally endangered plant *Brodiaea filifolia* in areas that are to be cleared for construction. Trained employees in the field on characteristics of the plant as well as habitat type and blooming season.

***Brodiaea filifolia* Study, Camp Pendleton, CA, 2009.** Acted as lead botanist for protocol surveys in search of the federally endangered plant *Brodiaea filifolia* to compare the effects of fire verses no fire in two locations.

***Eryngium pendletonensis* surveys, Camp Pendleton, CA, 2009.** Participated in protocol surveys in search of the endemic plant *Eryngium pendletonensis* in areas of appropriate habitat and soil type.

Rare plant surveys, Camp Pendleton, CA, 2009. Served as lead botanist for rare plant surveys in three training areas of Camp Pendleton in an area that burned recently. Assist in choosing the best areas to survey as well as identifying every plant encountered and collecting voucher specimens when necessary.

Rare plant surveys, Blythe and Palin, CA, private client, 2009. Served as a member of a botany team performing rare plant surveys in desert areas to be cleared for a potential project. Identified numerous plants for the team and took vouchers to the San Diego Museum of Natural History when necessary.

Vegetation mapping, Camp Pendleton, CA, 2009. Served as botanist team member for vegetation mapping surveys.

Vegetation Rapid Assessment, California Native Plant Society, San Diego, CA. Performed vegetation community rapid assessments of coastal flora as a volunteer. Helped key out several species of plants unknown to our group of botanists.

***Brodiaea filifolia* and Rare Plant Surveys, Camp Pendleton, CA, 2008.** Served as a botanist for large-scale plant surveys for Camp Pendleton's Grow the Force project, in which over 300 miles of new road, telephone lines, and other utilities will be upgraded or installed. Learned and photo-documented over 400 species of plants in two months.

Vernal Pool Floral Assessments, Camp Pendleton, CA, 2008. Assisted another botanist to compile a comprehensive floral inventory of over 900 vernal pools, including rare and endangered plants.

Native Plant Landscape Design, San Diego, CA, 2005-current. Own and manage a landscaping design company focused on installation and maintenance of California native plants. We promote healthier landscapes, reduce water, and eliminate the use of fertilizers.

Wetlands

Caesara Botanical Consulting

CAESARA BRUNGRABER

Independent Contractor for Botany and Environmental Surveys

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Wetland Delineations, Camp Pendleton, CA,2008. Assisted a wetland scientist as the lead botanist for jurisdictional wetland delineations on Camp Pendleton for Grow the Force. Over 50 sites were delineated, with almost half of them being completed solely by Mrs. Brungraber, who also helped compose data for, create tables for, and write the corresponding JDR.

Wetland restoration, Lakeside Riverpark Conservancy, Lakeside, CA, 2007. Served as sole vegetation designer for a constructed wetlands at the confluence of the Los Coches and San Diego Rivers. The wetland was designed for bioremediation and erosion control.

Wildlife

California gnatcatcher surveys, San Diego, CA, 2009/2010. Assisting a permitted individual in protocol surveys for the federally threatened California coastal gnatcatcher.

Quino Checkerspot Butterfly Surveys, Sunrise Powerlink, San Diego County, CA, 2008. Assisted in protocol surveys for the federally endangered Quino checkerspot butterflies along the right of way for a new powerline proposed to connect coastal San Diego to sources in the desert.

Andrews' Dune Scarab Beetle surveys, Algodones Dunes, Imperial County, CA, 2008. Assisted in sunset surveys for the endemic Andrews' dune scarab beetle. Over 20 individuals were observed and recorded.

Avian surveys, Imperial County, CA, 2008. Assisted in avian surveys as part of the Imperial Irrigation District Baseline survey project.

Avian surveys, Kenya, Africa, 2003. Assisted in bird surveys, flushings, tracking, and banding at several sites over four months in Kenya.

Wildlife monitoring, Kenya, Africa, 2003. Spent several months tracking and recording various animals and populations in Kenya as part of a larger group.

SKILLS AND ACTIVITIES

Skills: Rare plant surveys, herbaceous and woody plant identification, tree identification, tree counts and DBH measurements, vegetation mapping, vegetation rapid assessment, vernal pool floral inventory, wetland delineation, various GIS applications, preparing and presenting professional reports and papers, good oral communication skills, wildlife survey techniques, bird and mammal identification, restoration site design and monitoring, wilderness survival, photography, stick shift operation.

Software: I am proficient in the following: Microsoft Excel, Power Point, and Word, ArcView/ArcGIS (GIS), Mac systems, Adobe Dreamweaver, Photoshop, and Acrobat.

Activities: I live for being outdoors, and spend much of my free time botanizing in local spots or traveling to exotic destinations to teach myself about the flora. I also enjoy surfing, ultimate Frisbee, tennis, sailing, horseback riding, hiking, camping, skiing, and convertible rides. I am a California Native Plant Society active member and volunteer my time when possible.

D. Aaron Keller

Biologist
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Education

M.S. (May 2004) Wildlife and Fisheries Science
University of Tennessee, Knoxville, TN
Minor: Statistics
GPA: 4.0/4.0
Thesis title: Associations between eastern hemlock and avian occurrence and nest success in the southern Appalachians

B.S. (Dec 2000), Wildlife and Fisheries Science
North Carolina State University, NC
Minor: Environmental Sciences
Overall GPA: 3.85/4.0 GPA in major: 4.0/4.0 Summa Cum Laude

Summary of Recent Botanical Work Experience

Southern California Experience

Spring & Fall 2009 South Wind Conservation, Dolores, CO
Project Manager
Project Location: western Mojave Desert

Conducted desert tortoise surveys and health assessments between Barstow and Ridgecrest, CA. Work required knowledge of dominant western Mojave vegetation and plant identification.

Mar-May, 2007 Independent Contractor
Client: Natural Resource Consultants, Laguna Beach, CA
Project Location: Tehachapi Mountains/Antelope Valley, CA

Assisted with the design and implementation of a botanical inventory and native perennial grass habitat study. Duties included study design, identification of 250+ southern California plant species, cover data collection, sensitive species surveys, data and crew management, data analysis, and development of GIS-based model predicting distribution of native perennial grasslands within the study area.

Aug 2005-Sept 2006 Biologist
Natural Resource Consultants, Laguna Beach CA
Project Location: throughout southern California

Participated in numerous vegetation mapping projects and sensitive plant species surveys for CEQA compliance throughout San Bernardino, Riverside, Orange, San Diego, and Los Angeles counties in southern California. Performed plant identification and mapping in a variety of vegetation types including Mojave and Colorado Desert scrub, California annual grasslands, native perennial grasslands, chaparral, pinyon-juniper forest, Joshua tree woodlands, coastal sage scrub, and fallow agricultural fields.

Feb-May 2005 Biological Monitor
Bureau of Land Management-El Centro Field Office/Environmental Careers Organization, El Centro, CO
Project Location: Imperial Sand Dunes Recreation Area, Imperial County, CA

Conducted surveys in the CA for the federally-threatened Pierson's milkvetch (Astragalus magdalena var. peirsonii); the state- endangered Algondones Dunes sunflower (Helianthus niveus ssp. tephrodes); and other rare species endemic to the region such as Wiggin's croton (Croton wigginsii), sandfood (Pholisma sonora), and giant Spanish needle (Palafoxia arida var. gigantea).

Botanical Experience in Other Regions

2009-Present Ecosphere Environmental Services, Durango, CO
Seasonal Botanist/Biologist

Conduct various biological field work as-needed.

Jun-Sept, 2009 South Wind Conservation, Dolores, CO
Project Manager

Managed and conducted rangeland inventory of the Crow Indian Reservation in south-central Montana. Field work involved identification of over 200 species of vascular plants; production estimation; point-intercept cover data collection; rangeland health assessments; noxious weed surveys; trend assessments; and data management and analysis.

Sept 2008 South Wind Conservation, Dolores, CO
Project Manager

Supervised Oregon Spotted Frog habitat study in Klamath Falls, OR requiring identification of aquatic and emergent vegetation

Jun-Sept, 2008 South Wind Conservation, Dolores, CO
Project Manager

Managed and conducted 2nd season of rangeland inventory of the Crow Indian Reservation in south-central Montana. Field work involved identification of over 200 species of vascular plants; production estimation; point-intercept cover data collection; rangeland health assessments; noxious weed surveys; trend assessments; and data management and analysis.

May 2008 South Wind Conservation, Dolores, CO
Project Manager

Supervised and conducted rangeland inventory and sage grouse habitat assessment crew in southeastern Oregon. Duties included plant identification and line-intercept data collection.

Jun-Aug, 2007 Independent Contractor
Client: South Wind Conservation, Dolores, CO

Assisted with rangeland inventory of the Crow Indian Reservation in south-central Montana. Field work involved identification of over 200 species of vascular plants; production estimation; point-intercept cover data collection; rangeland health assessments; noxious weed surveys; trend assessments; and data management and analysis.

Work Experience

2009-Present

Seasonal Botanist/Biologist
Ecosphere Environmental Services
Durango, CO
Supervisor: Mike Fitzgerald
Activities:

- Conduct biological field work as-needed for Ecosphere Environmental Services

10/07-12/09

Project Manager
South Wind Conservation Inc.
Dolores, CO
Supervisor: Ike Wennihan
Activities:

- Managed field crews conducting rangeland inventory of Crow Indian trust lands in south-central Montana.
- Compiled, summarized, and analyzed rangeland inventory data and spatial data employing MS Excel, MS Access, and ESRI ArcGIS.
- Used ESRI ArcGIS software to produce maps and analyze spatial data associated with a Native Prairies Association of Texas project identifying remnant native prairie in central Texas.
- Wrote final reports summarizing rangeland inventory data.
- Wrote wildlife impact assessment for City of Cortez, McElmo Creek Preserve Management Plan.
- Managed Oregon spotted frog radio telemetry research project in Klamath Falls, OR.
- Conducted desert tortoise surveys and health assessments for desert tortoise as part of USGS project managing desert tortoises at Ft. Irwin Army Base near Barstow, CA.
- Managed and collected data for BLM rangeland inventory trend study in southeastern Oregon.
- Wrote proposals in response to federal and non-governmental organization Request for Proposals.
- Assisted with riparian restoration on Gunnison River, Colorado.

6/07-8/07

Rangeland Biologist
Independent Sub-contractor
Crow Indian Reservation, Montana
Client: South Wind Conservation Inc.
Activities:

- Conducted point-intercept and double-sample line transect production sampling of grassland vegetation communities on 500,000 acres of Crow Indian Reservation.
- Performed Rangeland Health Assessments and Trend Assessments following standard NRCS protocols.
- Identified 150+ species of vascular plants.
- Lived and worked in remote and rugged backcountry sites in south-central Montana.

1/07-6/07

Biologist
Independent Sub-contractor
Southern California Region
Client: Natural Resource Consultants
Activites:

- Assisted with design and implementation of multiple year GIS-based native perennial grassland habitat modeling study in north Los Angeles County, south Kern County, CA.
- Conducted surveys for California gnatcatcher in Los Angeles County.
- Monitored restoration of sage-scrub vegetation communities in Los Angeles County.

09/06-12/06 Wildlife Technician
Utah Division of Wildlife Resources
St. George, UT
Supervisor: Kevin Wheeler
Activities:

- Conducted desert tortoise clearance surveys near St. George, Utah.
- Conducted fish sampling on Virgin and Fremont River systems (southern Utah) using seining and electro-shocking techniques to determine distribution, relative abundance, and habitat use of federally-listed species.
- Performed large-scale rotenone application for removal of invasive fish species.
- Assisted with habitat restoration for least chub in the West Desert region of western Utah.
- Assisted with radio telemetry study examining habitat use and survival of desert tortoises in Red Cliffs Reserve, Utah.
- Assisted with willow propagation and riparian restoration in Virgin River watershed (southwest Utah).

10/05-8/06 Staff Biologist
Natural Resource Consultants
Laguna Beach, CA
Supervisor: Marcus England
Activities

- Managed and participated in desert tortoise presence/absence surveys for several projects near Barstow, CA, Indio, CA, and Yucca Valley, CA.
- Designed and conducted a GIS-based native perennial grassland modeling study in northern Los Angeles and Kern County
- Monitored coastal sage scrub restoration projects and conducted surveys to determine success of re-vegetation activities.
- Organized, supervised, and participated in focused surveys for burrowing owl, California gnatcatcher and other passerines, western fringe-toed lizard, flat-tailed horned lizard, and special status plant species in numerous locations throughout southern California.
- Mapped vegetation communities in several locations throughout coastal and interior southern California.
- Wrote reports summarizing results of biological resource assessments
- Entered, managed, and analyzed data using ESRI ArcGIS software, Microsoft Access, and Microsoft Excel.
- Assisted with management of data on company's shared network drive.

5/05-8/05 Avian Field Crew Leader
University of Nevada-Reno
South Lake Tahoe, CA
Supervisor: Heather Mathewson
Activities:

- Supervised crew researching willow flycatcher, dusky flycatcher, and yellow warbler demography in the Lake Tahoe Basin.
- Searched for and monitored nests of target bird species.
- Sampled arthropods using sticky traps and vegetation clippings
- Managed and entered data (MS Excel).
- Assisted with a northern goshawk master's project (conducted nest checks and placed trail counters).
- 4WD vehicle operation.

2/05-5/05 Biological Monitor
Bureau of Land Management/Environmental Careers Organization
El Centro, CA
Supervisors: Joelle Viau (ECO), Chris Knauf (BLM)
Activities:

- Conducted transect surveys for CA state and federally-threatened and endangered plants in the Algodones Dunes, California.
- Surveyed Colorado desert fringe-toed lizard relative abundance.
- Navigated in the field using GPS and iPAQ ArcPad software
- Conducted field work in harsh sand dune environment and lived in a remote camp setting.
- Conducted desert tortoise presence surveys on east side of Algodones Dunes.

9/04-11/04 Biological Research Technician
Ecosystem Management, Inc.
Albuquerque, NM
Supervisor: Ike Wennihan
Activities:

- Conducted rangeland inventory on Navajo Nation, NM including production estimation requiring plant identification
- Operated 4WD vehicles.
- Navigated in the field using GPS/USGS topographic quads.
- Worked and camped in small groups in remote locations throughout the eastern Navajo Nation.

1/02-5/04 Graduate Research Assistant
University of Tennessee, Dept. of Forestry, Wildlife and Fisheries
Knoxville, TN
Major Professor: Dr. David Buehler
Activities:

- Assisted with design and implementation of thesis research protocols involving:
    - Nest searching and monitoring
    - Nestling provisioning monitoring with video cameras
    - Avian mist netting/banding
    - Avian point count surveys
    - Arthropod surveys
    - Vegetation sampling
- Entered, managed, and analyzed data using MS Excel, SAS, NCSS, MS Access, ArcView, and SigmaPlot software programs.
- Wrote grant applications and reports related to thesis research.
- Assisted with teaching of undergraduate avian biology course.
- Assisted with northern saw-whet owl banding project.
- Assisted with northern mockingbird demography project.

10/01-12/01 Wildlife Research Assistant
University of Arizona, School of Natural Resources
Tucson, AZ
Supervisors: Matt Goode and Dr. Courtney Conway
Activities:

- Tracked movements and habitat use of tiger rattlesnakes using radiotelemetry.
- Assisted with rattlesnake transmitter implantation.
- Entered and managed data.
- Identified and tallied arthropods collected using sticky traps.

04/01-08/01 Wildlife Research Assistant
Northern Arizona University, Dept. of Environmental Sciences
Flagstaff, AZ
Supervisor: Dr. James Battin
Activities:

- Searched for and monitored passerine nests as part of demographic study examining effects of ponderosa pine restoration.
- Captured and banded passerines.
- Mapped passerine territories.
- Conducted avian surveys using transect and point counts.
- Collected data on vegetation composition and structure at nest sites.
- Operated 4WD vehicles.

05/00-07/00 Wildlife Research Intern
Tall Timbers Research Station
Tallahassee, FL
Supervisor: Shane Wellendorf
Activities:

- Monitored habitat use and nesting behavior of northern bobwhite using radiotelemetry.
- Collected data using handheld GPS units.
- Monitored depredation events at northern bobwhite nests using time-lapse video cameras.
- Captured and banded northern bobwhite broods.
- Entered data using ArcView GIS, Microsoft Excel, and Microsoft Access.
- Operated ATVs and FWD vehicles.

08/99-12/99 Wildlife Research Assistant
North Carolina State University
Department of Zoology
Supervisor: Shane Wellendorf
Activities:

- Entered data using MS Excel and ArcView GIS
- Analyzed northern bobwhite spatial data (ArcView GIS)
- Delineated northern bobwhite habitat (ArcView GIS)
- Conducted northern bobwhite covey surveys
- Entered and collected GPS data.
- Applied herbicide application for habitat management and restoration in agricultural systems

05/99-08/99 Wildlife Research Assistant
North Carolina State University
Department of Zoology
Supervisor: Dr. Peter Bromley
Activities:

- Conducted avian point counts
- Conducted nest searching for passerines
- Trapped and banded northern bobwhite
- Monitored predator activity using artificial quail nests and track rings as part of project evaluating effects of agricultural field border habitat management on predator/prey dynamics.
- Entered northern bobwhite habitat data including GPS data (ArcView GIS)
- Sampled vegetation habitat attributes
- Participated in predator removal activities
- Operated ATVs and FWD vehicles

Training, Permits, and Professional Activities

- California Scientific Collecting permit valid 2009-2010
- Permitted by USFWS to handle desert tortoises associated with Ft. Irwin Desert Tortoise Translocation Project
- 2009 Trained by Dr. Kristin Berry to handle and perform health assessments on desert tortoises
- 2008 USFWS Mexican Spotted Owl Survey Training, Moab, UT.
- 2006 Southern California Sensitive Butterfly Workshop, San Diego, CA
- 2005 Desert Tortoise Workshop, Ridgecrest, CA
- Society for Conservation Biology Member

Presentations and Awards

- “Reproductive ecology of hemlock-associated birds in the Southern Appalachians.” Annual Meeting of the Wildlife Society. September 2003. Burlington, VT.
- “Potential Effects of eastern hemlock decline on southern Appalachian breeding birds.” Joint meeting of the northeastern and southeastern Partner’s in Flight working groups. March 2003.
- “Effects of Hemlock Decline on Breeding Birds in the Southern Appalachians.” Annual Meeting of the Tennessee Ornithological Society. November 2, 2002. Columbia, TN.
- Phi Kappa Phi Honor Society member
- John T. Caldwell Scholarship recipient (NC State University—1997)

NEAL KRAMER, M.S. Botanist/Ecologist, Certified Arborist

EDUCATION/TRAINING

1981	***BA Botany*** University of California, Berkeley
1984	***MS Forest Ecology*** University of Idaho, Moscow
1996-2007	30 different floristic workshops (including ***Eastern Mojave Desert Flora***) University of California, Jepson Herbarium
2006	***Basic Wetland Delineation Certification***, Wetland Training Institute
2007	***Arborist Certification***, International Society of Arborists

PROFESSIONAL EXPERIENCE

1995- present	Botanical/Ecological Consulting, Kramer Botanical, Montara CA
1985-2005	Nursery Management, Nurserymen's Exchange, Half Moon Bay CA
1982-1984	Graduate Research/Teaching Assistant, Moscow ID Published *"Mature forest seed banks of three habitat types in central Idaho"*, Canadian Journal of Botany, Vol. 65, 1987
1975-1979	Wildfire Suppression/Helicopter Forman, USFS & BLM, Calif. & Wyoming

Mr. Kramer has experience with native flora and plant communities in 28 different California counties, in Arizona, Idaho, Nevada and Oregon, and internationally in the countries of Honduras, Ecuador and Peru. His experience includes plant inventories, rare plant surveys, tree surveys, invasive plant survey and eradication work, wetland delineations and revegetation projects for a wide variety of habitats. Rare plant surveys have included more than a dozen different San Francisco Bay Area sites, vernal pools in Fresno and Madera Counties and Delta marshland in Sacramento County. Neal is experienced in wetland delineation for a variety of wetland types including vernal pools. He has extensive experience using GPS systems for the purpose of mapping rare plants, invasive weeds and wetland delineations.

Mr. Kramer has 20 years of management experience with Nurserymen's Exchange in Half Moon Bay, Ca. where he was directly responsible for potted plant production on 35 acres of greenhouses and fields with a full time staff of 130 and up to 300 additional seasonal employees.

Neal is an experienced photographer with more than 1100 digital images posted on the Calphotos website. His photos can be found on the California Native Plant Society's online Inventory of Rare and Endangered Plants, and have been used in publications by the Peninsula Open Space Trust, Oregon State University Extension, UC Santa Barbara Department of Geology, and PG&E. In 2008, Mr. Kramer participated in multi-season floristic surveys across the Mojave Desert for the CalNev pipeline project between Las Vegas and San Bernardino.

JOLIE LONNER EGERT

Botanist, Ecologist

EDUCATION/TRAINING

2002	Master's Degree, Natural Resources/Forestry/Botany Humboldt State University, Arcata.
1991	Bachelor's Degree, Environmental Studies Evergreen State College, Olympia, Washington.
Coursework	Plants of the Southwest Deserts - University of Las Vegas, Nevada Wetland Plants – San Francisco State Universiity Successful CEQA Compliance – Univ. Calif. Davis Extension Land Conservation: Trends, Techniques and Opportunities – UCD Extension Habitat Restoration – UCD Extension

PROFESSIONAL EXPERIENCE

1996-present	Independent Biological Consultant, Fairfax, California.
1995	Field Botanist, University of Nevada, Reno
1992-1993	Field Biologist, Environmental Solutions, Las Vegas, Nevada

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Ms. Lonner Egert has 18 years working in the environmental field as a field biologist, botanist, forester, author, and project manager. She has performed botanical studies in the Great Basin and Mojave Desert, and central and northern California. She has excellent knowledge of botany, forestry and ecology, extensive understanding of diverse environmental issues ranging from fieldwork to policy making, and field experience with floristic surveys and special status plant species and communities. Experience with CEQA processes. Familiarity and experience with desert flora. Field and management experience in environmental restoration.

Conducted botanical surveys and vegetation monitoring with emphasis on medicinal plants and economic development. Directed community workshops on medicinal plant harvest and preparation. Trained local community to identify, harvest and use local medicinal plants. As an ethnobotanist working in Kosovo, Ms. Lonner Egert researched sustainable harvest methods, harvester demographics, the Balkans herb sector, standards and guidelines and pertinent legislation. She authored *A harvester's handbook to the sustainable wild collection of medicinal plants in Kosovo,* translated into Albanian and Serbian, and developed and organized Kosovo Medicinal Plant Producers and Processors Workshop

In Accra, Ghana, Ms. Lonner Egert Worked with Portal Timber Company to develop a sustainable forestry plan highlighting conservation strategies and development of medicinal and aromatic plants. She authored *Preliminary Management Plan for the Sustainable Development of the Ankasaho Forest Resource Management Area,*

Ms. Lonner Egert is a talented team leader with over ten years experience as a project manager for national, international and community-based organizations. She has a long track record of producing solid deliverables on time and within budget and is skilled at creating public awareness of, and support for programs. She is a seasoned and effective Organizer, with 20 years of demonstrated success in building alliances, networks and campaigns, working to secure cooperation and support in diverse populations and environments.

Lech Naumovich

Botanist, Restoration Ecologist, GIS specialist

EDUCATION/TRAINING

2001 Master's Degree, School of Forestry and Environmental Studies, Yale University
1998 Bachelor's Degree, Biology, Chemistry, Philosophy, University of Wisconsin
1998 Student Conservation Association Associate, USFS, Kamas, UT
1998 Firefighter's Red Card, USFS
2002 Post graduate Fulbright Scholar, Agricultural University of Wroclaw, Poland
2007 CNPS Releve and Rapid Assessment Workshop, California Native Plant Society

PROFESSIONAL EXPERIENCE

2006-Present Director, Golden Hour Restoration Institute, Berkeley, CA
2006-Present Conservation Analyst, East Bay CNPS, Walnut Creek, CA
2006-Present Independent Biological Consultant
2005-2006 Biological Technician and Restoration Coordinator, USARC – Fort Hunter Liggett, CA
2003-2005 Biological Technician, Restoration Technician, BLM – Fort Ord, CA

Mr. Naumovich has 8 years of experience performing field-based surveys for plants, vegetation types, and habitat types. His projects are mostly centered in the Bay Area of California, but he has performed surveys throughout California, notably California deserts, Northern California, the Sierra Nevada, and the Central Coast. His primary expertise is in the field of botany and ecology surveys and then subsequent descriptions of properties and areas for biological conservation, development, and other related activities. Mr. Naumovich is well versed in the CDFG requirements for rare plant surveys and proper reporting methodology in CEQA and NEPA documents. Mr. Naumovich is familiar with laws and regulations pertaining to California's Endangered Species Act as well as the Federal ESA.

Mr. Naumovich has worked with a wide variety of personnel varying from consultants to agency employees to non-profits to land trusts and developers. He has many years experience on federal lands including USFS, BLM, and NPS. He is familiar with operating policies and procedures including JSA's and Hazard Analysis. Mr. Naumovich has experience and training in working in extreme environments for prolonged periods, including desert and alpine areas. In 2008, Mr. Naumovich participated in multi-season floristic surveys across the Mojave Desert for the CalNev pipeline project between Las Vegas and San Bernardino.

URS

Lee Ripma

Staff Botanist

Areas of Expertise

Botanical Surveys and Vegetation Assessments
Wildlife Surveys and Biological Monitoring
Technical Report Writing

Years of Experience

With URS: 1 Year
With Other Firms: 3 Years

Education

BA, Environmental Studies with an emphasis on Ecology

California Anostraca and Notostraca Identification Class, Mary Belk

Rare plants of Orange County, Rancho Santa Ana Botanic Garden

Endangered Species and Habitat Conservation Planning, University of Riverside Extension

CEQA: A Step by Step Approach, University of Riverside Extension

Southwestern Willow Flycatcher Training Workshop, Southern Sierra Research Station

Overview

Lee Ripma is a botanist/wildlife biologist with four years of professional experience. Her main areas of expertise include botanical surveys, vegetation assessments, wildlife surveys, and biological monitoring. Ms. Ripma is a botanist who conducts sensitive plant surveys and has an in depth understanding of the unique habitats and species found throughout Southern California. In her capacity as a biologist, she has conducted a variety of plant, bird, and mammal surveys for Southern California species of special concern, including California Gnatcatcher, Least Bell's Vireo and Stephen's Kangaroo Rat. She is familiar with State and Federal environmental regulations, including California Environmental Quality Act (CEQA), National Environmental Policy Act (NEPA), Federal and California Endangered Species Acts (FESA and CESA) and Clean Water Act (CWA).

Project Specific Experience

Kinder Morgan California-to-Nevada (Calnev) Pipeline, Mojave Desert of California and Nevada.

Botanist responsible for conducting focused rare plant surveys in areas of special concern along the pipeline alignment, including the Clark mountains and Cajon Pass. Duties also included field coordination, rare plant reference population visits, vegetation mapping, burrowing owl surveys and assisting with preparation of associated technical documents. (2009)

Dana Point Headlands LLC, Dana Point, CA

Botanist responsible for conducting rare plant surveys on conserved areas of Dana Point Headlands. Duties also included assisting a permitted biologist in conducting California gnatcatcher nesting surveys. (2009)

Pendleton Marine Corps Base, Oceanside, CA

Botanist responsible for protocol thread-leaved brodiaea (*Brodiaea filifolia*) presence/absence surveys. Duties also included rare plant surveys, vegetation mapping, small mammal trapping for pacific pocket mouse (PPM), assisting in wetland delineation and technical report preparation. (2009)

County of San Diego, Goat and Smugglers Canyons, CA

Botanist responsible for rare plant surveys as well as Least Bell's Vireo and coastal California gnatcatcher protocol presence/absence surveys. (2009)

Otay Land Company LLC, Parcel D, Jamul CA

Botanist responsible for rare plant surveys on mitigation bank land. Surveys yielded several new locations for sensitive plant species. (2009)

County of San Diego, Bonita, CA

Botanist responsible for vegetation mapping and rare plant surveys within the Sweetwater River. Duties also included assisting with wetland delineation and the preparation of a biological technical report for the project. (2009)

Rare plant surveys, Western Riverside MSHCP Area, CA

Botanist responsible for conducting surveys to inventory sensitive plant species covered by the Western Riverside MSHCP in order to meet HCP species objectives. (2007-2008)

Nest searching for California Gnatcatcher, Least Bell's Vireo, Yellow-breasted Chat and Yellow Warbler, Western Riverside MSHCP Area, CA

Wildlife biologist responsible for locating and monitoring nests of above species until nest either failed or fledged in order to meet species objectives laid out in the Western Riverside MSHCP. (2008)

Wintering Raptor Surveys, Western Riverside MSHCP Area, CA

Wildlife biologist responsible for conducting transects in order to document wintering raptor species and meet the species objectives for Ferruginous Hawk, Merlin, Cooper's Hawk and Sharp-shinned Hawk laid out in the Western Riverside MSHCP. (2007-2008)

SKR Density and Occupancy Surveys, Western Riverside MSHCP Area, CA

Wildlife Biologist responsible for live trapping Stephen's Kangaroo Rats in order to comply with density and occupancy species objectives laid out in the Western Riverside MSHCP. (2007-2008)

Pacific Pocket Mouse Surveys, Camp Pendleton, CA

Wildlife Biologist responsible for live trapping to determine areas occupied by Pacific Pocket Mouse. (2007)

Burrowing Owl Surveys, Western Riverside MSHCP Area, CA

Wildlife Biologist responsible for using play-back method to complete surveys to determine Burrowing Owl presence within MSHCP Area in order to meet species objectives laid out under the Western Riverside MSHCP. (2007)

Professional Societies/Affiliates

California Native Plant Society, Member
Southern California Botanists, Member

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CECILE SHOHET

Botanist, Terrestrial Plant Ecologist

EDUCATION/TRAINING

1999	M.S., Botany, Arizona State University.
1989	Biology, Queens College of the City University of New York
	Post Graduate Work, lichens and bryophytes, Southern Oregon University

PROFESSIONAL EXPERIENCE

2008-present	Public Education Coordinator, Jepson Herbarium, Berkeley.
2008	Consulting Botanist, Rogue River/Siskiyou National Forest, Medford, Oregon.
2007-2008	Consulting Botanist, Roseburg Bureau of Land Management, Roseburg, Oregon.
2005-2007	Consulting Botanist, Plumas National Forest, Northern Sierra Nevada, California.
2005-2007	Special Project Botanist (GS-11), Rogue River-Siskiyou National Forest, Medford, Oregon.
2005-2006	Botanist (GS-11), Columbia River Gorge National Scenic Area, Hood River, Oregon.
2005	Botanist (GS-11), Stanislaus National Forest, Sonora, California
2005-2006	Consulting Botanist, Illinois Valley Community Response Team, Cave Junction, Oregon.
200-2004	District Botanist (GS-9), Illinois Valley and Galice Ranger Districts, Rogue River-Siskiyou National Forest, Oregon.

Ms. Shohet has over ten years of experience in botanical resource management, education, ecological research, and field inventory/survey work. Worked extensively with the vegetation of Northern California, Southern Oregon, and Arizona; both for the federal government and in the private sector as sole proprietor of Calypso Consulting. Currently works for the Jepson Herbarium at the University of California at Berkeley, creating and implementing educational programming for botanical professionals and enthusiasts. She has been awarded multiple federal and local government contracts to conduct rare plant surveys, including surveys of non-vascular species, on thousands of acres of federal lands in northern California (Sierra) and southern Oregon. She has six years of experience as a botanist for regions 5 and 6, U. S. Forest Service, Lassen and Rogue River-Siskiyou National Forests. As District Botanist for the Illinois Valley and Galice Ranger Districts, Ms. Shohet developed and implemented a complex botanical management program encompassing 500,000 acres of floristically diverse federal lands rich in serpentine endemic species. The program included extensive inventory and survey work of both vascular and non-vascular species of concern; supervision of seasonal field crews; resource management of timber, mining, engineering, recreation, and fuel reduction projects; grant writing (received over $150,000 in grant funding) and subsequent project implementation.

Ms. Shohet implemented and supervised a noxious weed program with $50,000 annual budget. As part of the program, supervised crews and volunteers; development of an off-road vehicle management plan for the Eight Dollar and Days Gulch botanical areas. She managed ArcGIS based databases of rare species and noxious weeds, and has prepared numerous NEPA documents, including Environmental Impact Statements (EIS) and Environmental Assessments (EA).

Through her graduate work at Arizona State University, Ms. Shohet gained strong familiarity with the Sonoran Desert flora.

URS

Cara Snellen, MS

Biologist

Areas of Expertise

Biological Resource Assessment; Environmental Documentation; Desert Tortoise Surveys; Blunt-Nosed Leopard Lizard Surveys; Burrowing Owl Surveys; Flora and Fauna Identification

Years of Experience

With URS: 9 months

Education

MS Biology 2006 - California State University Long Beach (CSULB)

BS Marine Biology 1999 - CSULB

Overview

Ms. Snellen has an extensive background in field research and ecological studies. As a biologist, she has participated in projects that included wetlands and waters determinations, restoration and monitoring, protocol USFWS special status species surveys, and avian and botanical surveys. Ms. Snellen has prepared numerous biological reports and assessments to demonstrate compliance with NEPA, CEQA, state and federal Endangered Species Acts, and other relevant legislation.

Project-Specific Experience

SES Solar One Energy Project – San Bernardino County, CA.
Performed protocol surveys for burrowing owls at an 11,000 acre project site in the Mojave Desert. Responsible for both group and solo navigation using GIS maps and GPS units during all surveys through varied and difficult terrain.

Caltrans OVRTS Stormwater Monitoring Project – Orange County, CA.
Conducted stormwater monitoring at a freeway collection site during rain events. Responsible for monitoring and maintaining collection equipment as well as preparing stormwater samples for laboratory analysis.

South Perris First Industrial Project – Riverside County, CA.
Performed fairy shrimp surveys and habitat assessment following USFWS protocol.

High-Speed Rail Project – Los Angeles County, CA.
Completed vegetation mapping of proposed HSR Sylmar-Palmdale project site.

Public Works Mitigation Project - Orange County, CA
Conducted vegetative monitoring within a mitigation site and assisted in habitat enhancement, which included transplanting native plants.

Public Works Mitigation Project - Orange County, CA
Performed clearance surveys for nesting birds within a habitat mitigation site and was responsible for a letter documentation of survey findings.

Public Works Mitigation Project - Orange County, CA
Performed vegetative surveys within a large multi-habitat mitigation site. Assisted in data organization and entry as well as statistical analyses for the monitoring reports.

Caltrans Transportation Project – Orange County, CA

Performed wetlands and waters determination surveys for a transportation project. Assisted in the preparation of a jurisdictional determination report.

Public Works Project – Orange County, CA.
Participated in both a biological resource assessment and a wetlands and waters determination survey. Assisted in the preparation of the biological technical report and the jurisdictional determination report.

Energy Project – San Luis Obispo County, CA.
Performed protocol surveys for blunt-nosed leopard lizards at a 3,000 acre project site. Responsible for navigation for a four-person crew using GIS maps and GPS units during all surveys.

Energy Project – San Bernardino County, CA.
Performed protocol surveys for desert tortoise and rare plants at an 8,000 acre project site in the Mojave Desert. Conducted wetlands and waters determination surveys for the project as well as rare plant population location surveys in the Clark Mountains. Responsible for both group and solo navigation using GIS maps and GPS units during all surveys through varied and difficult terrain.

Infrastructure Project – Los Angeles County, CA.
Performed rare plant reference plant population location surveys in coastal sage scrub, chaparral, oak woodland, and riparian habitats.

Publications

C.L. Snellen, P.J. Hodum, and E. Fernández-Juricic. 2007. Assessing western gull predation on purple sea urchins in the rocky intertidal using optimal foraging theory. *Can. J. Zool.* 85: 221-231.

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CHRISTOPHER THAYER

Botanist, Wetlands Specialist

EDUCATION/TRAINING

1999	USACE Wetland Delineation and Management Training Certification Program, San Francisco, California
1974	Humboldt State University, Arcata, California. Botany and Natural Resources Conservation; undergraduate studies

PROFESSIONAL EXPERIENCE

2007-present	Independent Biological Consultant, Lafayette
1998-2007	Sycamore Associates LLC, Walnut Creek.
1997	Freelance Botanical Consultant, Orinda
1992-1996	Volunteer Botanist, East Bay Municipal Utility District

Chris Thayer is a highly regarded, field-oriented biologist with more than ten years of professional experience throughout the Bay Area and greater California. Although his emphasis has been in Alameda and Contra Costa counties, his work has taken him north as far as Humboldt and Mendocino counties on the coast, and south to Fresno and Kern counties on the interior. Past duties have included the coordination, scheduling and participation in numerous wetland delineations, biological assessments, vegetation and wildlife habitat assessments, and multiple-season focused botanical surveys for special-status plants and natural communities. He has compiled many comprehensive wetland and terrestrial plant species inventories, performed qualitative and quantitative vegetation assessments and vegetation mapping, analyzed impacts to biological resources, developed mitigation and restoration plans and strategies, and conducted construction monitoring in sensitive habitats. He has overseen and contributed to the preparation of text for hundreds of technical reports, memoranda, letters, and other supporting documents for Environmental Impact Reports, Negative Declarations, and CEQA compliance. In 2008, Mr. Thayer participated in multi-season floristic surveys across the Mojave Desert for the CalNev pipeline project between Las Vegas and San Bernardino.

In addition to his far-reaching experience with special-status plant species, including their identification, rarity, distribution, and soil and habitat preferences, Mr. Thayer has extensive knowledge and experience as a field biologist with a number of sensitive wildlife species. These include aquatic species such as California red-legged frog, California tiger salamander, and western pond turtle, as well as terrestrial species such as silvery legless lizard, San Francisco dusky-footed wood rat, Alameda whipsnake, San Joaquin kit fox, Valley elderberry longhorn beetle, Callippe silverspot butterfly, and Coast Range shoulderband snail, among others. Considerable experience with burrowing owl has included numerous habitat assessments and subsequent protocol monitoring of occupied burrows and nesting pairs.

Through his work he has developed a thorough knowledge and familiarity with procedures relating to the California Environmental Quality Act, California Endangered Species Act, Federal Endangered Species Act, Clean Water Act, National Environmental Policy Act, and other relevant local, state, and federal environmental legislation and policies. In his biological consulting capacity, Mr. Thayer has worked with a wide variety of representatives of local municipalities, special districts, Caltrans, private landowners, and residential and commercial developers, as well as various regulatory agencies including U.S. Army Corps of Engineers, California Department of Fish and Game, Regional Water Quality Control Board, U.S. Environmental Protection Agency, and U.S. Fish and Wildlife Service.

MICHAEL K. WOOD

Botanist

EDUCATION/TRAINING

1989	Master's Degree, Ecology and Systematic Biology San Francisco State University.
1981	Bachelor's Degree, Ornamental Horticulture California Polytechnic State University, San Luis Obispo.
1990	Basic Wetland Delineation Training, Wetland Training Institute
1990	OSHA Hazardous Materials Worker 40-hour training
1994	Advanced Wetland Delineation, Wetland Training Institute

PROFESSIONAL EXPERIENCE

2001-present	Independent Biological Consultant, Walnut Creek.
1998-2001	Sycamore Associates LLC. Walnut Creek. Owner/Principal.
1992-1998	Independent Biological Consultant, San Francisco.
1989-1992	Ogden Environmental and Energy Services, San Diego and San Francisco.
1987-1989	Independent Biological Consultant, San Francisco.
1986-1989	Research Assistant, Instructor. San Francisco State University.

Mr. Wood has 20 years of experience performing field-intensive evaluations of wetland and upland habitats throughout California. His primary expertise lies in the fields of botany, wetland ecology and habitat restoration, performing and supervising botanical and wildlife surveys and wetland delineations, conducting impact assessments, developing, implementing and monitoring habitat restoration programs, and resource conservation planning.

Mr. Wood brings to his projects a wide range of expertise in vegetation ecology, soils and geology, fire ecology, wetland ecology, environmental policy and permitting, as well as experience conducting pre-Phase 1 hazardous site assessments. He has successfully assisted residential and commercial developers, federal, state and local governmental agencies, planners, and non-profit organizations in understanding and managing the constraints and opportunities posed by regulated biological resources. His strong technical background enables him to be an effective member within interdisciplinary teams.

Mr. Wood was a co-owner of a dynamic environmental consulting company in the East Bay. As a principal, Mr. Wood participated in all aspects of day-to-day business operations, including client relations, marketing, technical oversight, quality control, agency negotiation, hiring and training, and supervising a staff of 20 employees and numerous subconsultants.

Mr. Wood has worked throughout California, Oregon, Hawaii, and Guam. He is also familiar with the vegetation and wildlife of western Europe, East Africa, Australia, Mexico, Argentina, and the Malaysian peninsula. He is fluent in German and has a working knowledge of Spanish. Mr. Wood is the developer of CalBiota, the first comprehensive electronic database of California's plants, wildlife, insects, lichens, and fungi developed specifically for use by biological consultants.

Mr. Wood regularly teams with associates providing specialized expertise in environmental permitting and regulatory compliance, mitigation, CEQA/NEPA, endangered and other special-status wildlife species, anadromous fish and aquatic resources, entomology, construction and long-term monitoring, and arboriculture. Mr. Wood has extensive experience conducting botanical surveys in the California deserts. Including studies for transmission lines, military base studies, and solar power generation facilities. In 2008, he participated in multi-season floristic surveys across the Mojave Desert for the CalNev pipeline project between Las Vegas and San Bernardino.

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
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APPLICATION FOR CERTIFICATION FOR THE
IMPERIAL VALLEY SOLAR PROJECT
(formerly known as SES Solar Two Project)
IMPERIAL VALLEY SOLAR, LLC

Docket No. 08-AFC-5
PROOF OF SERVICE
(Revised 4/12/10)

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*indicates change

DECLARATION OF SERVICE

I, _Corinne Lytle, declare that on_April 27, 2010_, I served and filed copies of the attached, Applicant's Early Spring Botany Report. The original documents, filed with the Docket Unit, are 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/solartwo/index.html]

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:

__X__ sent electronically to all email addresses on the Proof of Service list;

_____ by personal delivery;

__X__ 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:

__X__ 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. 08-AFC-5
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.

Original signed by

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Corinne Lytle

*indicates change