

## Results for Spring 2012 Rare Plant Surveys

Survey Dates:

<b>Dates</b>	<b>Staff</b>
October 23-24, 2011	John Messina; Brenda McMillan
March 3-4, 30-31, 2012	John Messina; Tyler Morrison

A total of 36 species were observed during the site surveys of the BLM lands. The low number of species observed on the BLM lands reflects relatively small acreage of the gen-tie corridor area. An additional 11 species were observed on the private lands during the vegetation mapping of those areas.

Vegetation Community	BLM-Lands Acreage <sup>1</sup>	Private Lands Acreage <sup>1</sup>	Total Project Acreage <sup>1</sup>
<b>Desert Scrub Communities</b>			
Creosote bush-white bursage scrub	42.9/1.8/44.7	2.0/3.7/5.7	44.9/5.5/50.4
Stabilized desert dunes	0/23.8/23.8	0/0.2/0.2	0/24.0/24.0
Quailbush scrub	0 / 0 / 0	34.1/26.4/60.5	34.1/26.4/60.5
<b>Alkali goldenbush scrub</b>	0/0/0	16.0/0/16.0	16.0/0/16.0
<b>Desert Scrub Communities Total</b>	42.9/25.6/68.5	52.1/30.3/82.4	95.0/55.9/150.9
<b>Riparian and Wetland Communities</b>			
Arrow weed thicket	0/0.2/0.2	6.4/11.3/17.7	6.4/11.5/17.9
Tamarisk thicket	0 / 0 / 0	0/6.5/6.5	0/6.5/6.5
Cattail marsh	0 / 0 / 0	0/0.6/0.6	0/0.6/0.6
Common reed marsh	0 / 0 / 0	5.0/9.6/14.6	5.0/9.6/14.6
Open water w/arrow weed thicket	0.7/0/0.7	3.0/0/3.0	3.7/0/3.7
Disturbed wetland	0 / 0 / 0	0/16.6/16.6	0/16.6/16.6
<b>Riparian and Wetland Communities Total</b>	0.7/0.2/0.9	14.4/44.6/59.0	15.1/44.8/59.9
<b>Non-Native Communities</b>			
Athel tamarisk type woodland	0/0.8/0.8	0/2.1/2.1	0/2.9/2.9
Active agriculture	0/6.0/6.0/	0/3788.3/3788.3	0/3794.3/3794.3
Fallow agriculture	0/0.3/0.3	0/141.1/141.1	0/141.4/141.4
Developed	0/2.2/2.2	0/121.5/121.5	0/123.7/123.7
<b>Non-Native Communities Total</b>	0/9.3/9.3	0/4053.0/4053.0	0/4062.3/4062.3
<b>Grand Totals</b>	43.6/35.1/78.7	66.5/4127.9/4194.4	110.1/4163.0/4273.1

<sup>1</sup>undisturbed community acreage/disturbed community acreage/total community acreage

## **Special Status Plants**

### **BLM Lands**

**Table 3** lists all the Special Status Plants that are known from the vicinity of the Campo Verde Project area. Surveys of the BLM lands were conducted in October 2011 and March 2012. The fall surveys were conducted to capture fall-blooming ephemeral species and woody perennial species (trees and shrubs), which may not bloom in the fall but would have been observable during this survey window.

The March 2012 surveys were conducted to capture early spring ephemeral blooming species as well as the aforementioned woody perennial species, many of which bloom during the spring. Many of the special status species have a long blooming period that extends from the fall through the spring encompassing both the fall and spring survey periods and would have been detectable, if present during both of these surveys.

No Special Status Plants were observed on the BLM lands during either the October or March surveys. This area of Imperial County experienced very little summer/fall rainfall. As a result, there was no evidence that any fall blooming, ephemeral species germinated during the fall 2011. Because of the low amount of rainfall, fall blooming Special Status Plants that could be present onsite may not have been observable. Despite this, approximately one-half of the Campo Verde Project area on the BLM lands was surveyed in November 2010 for the Centinela Solar Energy Project (Heritage 2011); no Special Status Species were observed in this area at that time and fall blooming species were present in this area in 2010 either.

Though other portions of the Sonoran Desert had reported low representation of spring blooming ephemerals during spring of 2012, the BLM lands within the Campo Verde Project area exhibited a good representation of the very common spring blooming annuals and herbaceous perennials in early March. High cover of plantain, narrow-leaf cryptantha, as well as lesser coverage of desert lily, basket evening-primrose (*Oenothera deltoides* ssp. *deltoides*) desert sunflower (*Geraea canescens*), and desert dandelion (*Malacothrix glabrata*) indicate that rainfall was sufficient for germination of these early ephemeral species and suggests that conditions were sufficient for germination of early-spring ephemeral special status plant species if present.

Most of the Special Status Species assessed in this report are either not expected to occur or would have a low potential to occur, within the BLM lands. The majority of the species are not expected to occur because of lack of appropriate habitat, or lack of known or historical populations from the vicinity. Species with a low potential for occurrence have suitable habitat present within the Campo Verde Project area on BLM lands, but due to the relatively small amount of habitat, the proximity to agricultural fields, the Imperial Valley substation, and several existing transmission lines, their potential for occurrence is much less likely.

### Federally and State Listed Endangered, Threatened and Rare Species

Three federally and/or state listed species are known from the vicinity of the Campo Verde Project area: Peirson's milk vetch (*Astragalus magdalenae* var. *peirsonii*) a federally threatened species, a state endangered species; Algodones Dunes sunflower (*Helianthus niveus* ss. *tephrodes*), a California state listed endangered species; and Wiggins' croton (*Croton wigginsii*) is a California state listed rare species. Below is a brief discussion of these species, additional information is included in **Table 3**.

Peirson's milk vetch is a federally threatened species, a state endangered species and BLM sensitive species. This species occurs in desert dunes and is known from fewer than 10 occurrences (CNPS 2011). This species was not observed during the March 2012 surveys which coincided with this species traditional flowering period (January – May). This species is not expected to occur within the Campo Verde Project area due to the marginal habitat of the desert dunes (along the Preferred Gen Tie route).

Algodones Dunes sunflower is a California state listed endangered species and a California Native Plant Society's (CNPS) Rare Plant Rank 1.2 (Rare, Threatened or Endangered in California, and elsewhere/fairly endangered in California) species. This species was not observed during the survey which coincided with its blooming period (September – May). There is very marginal suitable habitat (desert dunes) within the project area on BLM lands. As mentioned previously, these dunes are the result of human created windbreaks. This species is also only known from the Algodones Dunes; the site is well outside of the known range of this species. This species was not observed during the October 2011 or the March 2012 surveys both of which coincided with this species traditional blooming period (September – May). As such, this species is not expected to occur within the Campo Verde Project area on the BLM or private lands.

Wiggins' croton is a California state listed rare species and a BLM sensitive species that was historically considered restricted to the Algodones Dunes on East Mesa, though this species has recently been reported near Plaster City. Individuals of croton previously observed around the IV Substation adjacent to the Campo Verde project area are California croton (*Croton californicus*) (John Messina pers obs). No individuals in the genus *Croton* were observed within the Campo Verde Project area during the October 2011 or the March 2012 the latter of which coincided with this species traditional flowering period (March-May). Wiggins' croton is not expected to occur within the BLM lands Campo Verde Project area.

### BLM Sensitive Species

A total of 10 BLM sensitive species are known from the Campo Verde Project area: Peirson's milk vetch and Wiggins' croton mentioned in the previous subsection, chaparral sand verbena (*Abronia villosa* var. *aurita*), Peirson's pincushion (*Chaenactis carphoclinia* var. *peirsonii*), flat-seeded spurge (*Chamaesyce*

*platysperma*), Wolf's cholla (*Cylindropuntia wolfii*), Mountain Springs bush lupine (*Lupinus excubitus* var. *medius*), giant Spanish needle (*Palafoxia arida* var. *gigantea*), sand food (*Pholisma sonora*) and Orcutt's woody-aster (*Xylorhiza orcuttii*).

Below is a brief discussion of these species, additional information is included in **Table 3**.

No BLM sensitive species were observed during either the October 2011 or March 2012 surveys. The October 2011 and March 2012 surveys both coincided with the blooming periods of chaparral sand verbena, and flat-seeded spurge. The March 2012 survey coincided with the blooming periods of Peirson's pincushion, Wolf's cholla, Mountain Springs bush lupine, giant Spanish needle, sand food, and Orcutt's woody-aster.

Chaparral sand verbena is a BLM Sensitive Species, a CNPS Rare Plant Rank 1B.1 species, and a CNDDDB special plant. This annual occurs in sandy areas including desert dunes. This species was not observed during the March surveys, which coincided with its traditional flowering period (January – September). Marginal dune habitat occurs along the Preferred Gen Tie route just north of the IV Substation, but this species is not expected to occur within the project area.

Peirson's pincushion is a BLM Sensitive Species, a CNPS Rare Plant Rank 1B.3 species, and a CNDDDB special plant. This annual grows in sandy areas. This species was not observed during the March surveys, which coincided with its traditional flowering period (March - April). Most reported occurrences of this species are not close to the site. As such this species has a low potential for occurrence within the project area.

Flat-seeded spurge is a BLM Sensitive Species, a CNPS Rare Plant Rank 1B.2 species, and a CNDDDB special plant. This annual occurs in sandy areas but is only known from a few historical locations. The March survey coincided with this species traditional blooming period (February – September) but due to its rarity is not expected to occur within the project area.

Wolf's cholla is a BLM Sensitive Species, a CNPS Rare Plant Rank 4.3 species, and a CNDDDB special plant. Wolf's cholla is a small, multi-branched cactus with cylindrical stem segments. This species is known from Pinto Wash south of the Project area. This species was not observed during the October 2011 or the March 2012 surveys the latter of which coincided with this species traditional blooming period (March-May). As such, this species is not expected to occur within the Campo Verde Project area on the BLM or private lands.

Mountain Springs bush lupine is a BLM Sensitive Species, a CNPS Rare Plant Rank 1B.3 species, and a CNDDDB special plant. This perennial shrub blooms from March – May, which coincides with the March surveys. This species was not observed during the surveys and is not expected to occur within the Campo Verde Project area as the

project area is well east of the reported range of this species (i.e. Mountain Springs Grade).

Giant Spanish needles is a BLM sensitive species, a CDFG special plant and a CNPS Rare Plant Rank 1B.3 species. This species occurs in desert dunes. There is marginal dune habitat within the project area, specifically along the Proposed Gen Tie route on the BLM lands. This species was not observed during the March surveys, which were conducted during the traditional flowering period of this species (March – May). This species is not expected to occur within the Campo Verde Project area as most of the reported localities for this species are in the Algodones Dunes of East Mesa.

Sand food is a BLM sensitive species, a CDFG special plant and a CNPS Rare Plant Rank 1B.2 species. This herbaceous perennial is parasitic on other desert shrub species generally occurring in very sandy areas. Though this species was not observed during the surveys, which coincided with this species traditional flowering period (March – May), there is a low to moderate potential for its occurrence within the Campo Verde Project area especially in the sandy areas along the Proposed Gen-Tie route since it is a parasitic plant and the flowers are not always present.

Orcutt's woody-aster is a BLM sensitive species, a CDFG special plant and a CNPS Rare Plant Rank 1B.2 species. This herbaceous perennial was not observed during the March 2012 surveys, which coincided with this species traditional blooming period (March – April). Rocky canyons and sandy washes are its typical habitat which are absent from the project area. As such this species is not expected to occur within the project area.

#### California Department of Fish and Game (CNDDDB) Special Plants

The remaining 37 plants assessed for the Campo Verde Project are CDFG Special Plants and are contained within the CNPS Inventory. All of these plants are assessed in Table 3. Those species with the highest potential for occurrence or with reported occurrences near the Campo Verde Project area are discussed below. The remaining species are discussed in **Table 3**.

Brown turbans (*Malperia tenuis*) is a CNPS Rare Plant Rank 2.3 species and CNDDDB special plant. This species occurs in Sonoran Desert scrub and is known from the Yuha Basin. This inconspicuous species is very difficult to observe. Though no individuals were observed during the March survey, which coincided with its traditional flowering period (March-April), this species would still have a low-moderate potential for occurrence due to its very inconspicuous nature.

Parish's desert-thorn (*Lycium parishii*) is a CNPS Rare Plant Rank 2.3 species and CNDDDB special plant. One individual of desert thorn (*Lycium* sp.) was observed during the October 2011 survey along the Preferred Gen-Tie route just north of the IV Substation. This individual was not in flower during this survey and could not be identified. Attempts to relocate this individual during the March survey were not

successful. This species would have a low potential for occurrence within the project area.

Thurber's pilostyles is a CNPS Rare Plant Rank 4.3 species (Plants of limited distribution/not very endangered in California) and a CNDDDB special plant. Thurber's pilostyles is a parasitic plant of the genus *Psorothamnus*. This species is known from Pinto Wash south of the Project area. Several individuals of white dalea (*Psorothamnus emoryi*) were observed along the southern portion of the Proposed Gen-Tie route just north of the IV Substation. No individuals of Thurber's pilostyles were observed on these individuals though this species may not have been observable at the time of the survey as this parasitic flower is usually only present in January and February. However, this species would have a low potential for occurrence within the BLM lands portion of the Campo Verde Project area due to the small population size of its host.

Utah vine milkweed (*Funastrum utahense*) is a CNPS Rare Plant Rank 4.2 species. This species is an herbaceous vine that grows on other desert shrubs and was not observed during either survey. Utah vine milkweed would have a low to moderate potential for occurrence within the Campo Verde Project area on BLM lands.

California satintail (*Imperata brevifolia*) is a CNPS Rare Plant Rank 2.1 species (Rare, Threatened or Endangered in California, more common elsewhere/seriously endangered in California) and a CNDDDB special plant. This tall perennial grass occurs in riparian scrub and mesic habitats, which are not present along the gen-tie corridors on the BLM lands. This species was not observed during the October 2011 or the March 2012 surveys both of which coincided with this species traditional blooming period (September-May). As such, these species are not expected to occur within the Campo Verde Project area on the BLM or private lands.

Abram's spurge (*Chamaesyce abramsiana*) is known from several historical locations from the vicinity of the Campo Verde Project area. Abram's spurge is a CNPS 2.2 species (Rare, Threatened or Endangered in California, more common elsewhere/fairly endangered in California) and a CNDDDB special plant that is a fall/winter blooming species (September – November). This species was not observed during the October 2011 survey, which though conducted during this species traditional flowering period (September-November) may be inconclusive due to the lack of summer/fall precipitation in the Campo Verde project area. Despite this, Abram's spurge is not expected to occur within the project area given the lack of known populations near the project site and because much of the suitable habitat is adjacent to agricultural activities, a substation and transmission line corridors.

Little-leaf elephant tree (*Bursera microphylla*), fairy duster (*Calliandra eriophylla*), crucifixion thorn tree (*Castela emoryi*) are all CNPS Rare Plant Rank 2.3 and CNDDDB special plants. All are perennial trees or shrubs and would have been observable during the time of the survey during both the October 2011 and March 2012

surveys. The March 2012 surveys coincided with the traditional flowering period of the fairy duster. No individuals of these species were observed during the surveys. In addition, preferred habitats for these species are typically more rocky or gravelly bajadas or playas that are not present within the Campo Verde Project area. As such the little-leaf elephant tree, fairy duster, and crucifixion thorn tree are not expected to occur within the BLM lands Campo Verde Project area.

The remainder of the species in **Table 3** either have a very low potential for occurrence or are not expected to occur within the Campo Verde Project area on BLM lands because of the absence of suitable habitat of the site is outside of the known range of these species. Please refer to Table 3 for a description of these species and the probability for their occurrence within the Campo Verde Project area.

#### Additional CDFG CNDDDB Special Plants Not Surveyed For During Fall and Spring Surveys

In addition to the Utah vine milkweed, several other species may not have been detectable during the October 2011 and March 2012 surveys because these surveys were conducted outside of the traditional flowering periods of these species making positive identification not possible. These species include: Watson's amaranth (*Amaranthus watsonii*) a CNPS Rare Plant Rank 4.3 and CDFG Special Plant, which blooms August-September; Las Animas colubrine (*Colubrina californica*) a CNPS Rare Plant Rank 4.3 and CDFG Special Plant which blooms from April – June; curly herissantia (*Herissantia crispa*), a CNPS Rare Plant Rank 2.3 and CDFG Special Plant that blooms from August-September; Baja California ipomopsis (*Ipomopsis effusa*), a CNPS Rare Plant Rank 2.1 and CDFG Special Plant, which blooms April-June; desert unicorn plant (*Proboscidea althaeifolia*), a CNPS Rare Plant Rank 4.3 and CDFG Special Plant, which blooms May-August; desert spike-moss (*Selaginella eremophila*) a CNPS Rare Plant Rank 2.2 and CDFG Special Plant, a non-flowering plant that is most conspicuous from May-July. Most of these species would have a low potential for occurrence within the Campo Verde Project area while others are not expected to occur due to lack of suitable habitat (e.g. Las Animas colubrine, desert spike moss, Orcutt's wood-aster), or the project site is outside of the species reported known range e.g. curly herissantia.

Hairy stickleaf is a CNPS Rare Plant Rank 2.3 species and CNDDDB special plant.

#### Non-BLM Lands

No Special Status species are expected to occur within the small areas of disturbed native habitat on the private lands because they were previously disturbed, are surrounded by existing agricultural activities, are small and relatively linear, and are isolated from large areas of native habitats by surrounding agricultural fields and other disturbances. Some of these fallow fields appear to have high levels of soil salinity as evidenced by the formation of hard or brittle salt crusts that have formed when saline surface waters evaporate. High saline soil levels are likely to inhibit

seed germination and seedling survival. This was evidenced by the lack of seedling germination during the October and March surveys. No seedlings were evident though the soils still had a high amount of soil moisture, which was further evidenced by the mud-cracked polygons and curls detached from the underlying sediments which indicates periodic inundation. These areas were either bare or supported Quailbush. There was no evidence of any ephemeral species in this area neither during the October 2011 or the March 2012 surveys. Small saplings of Quailbush were relatively common away from the areas of salt crust, suggesting that even this saline-tolerant species could not tolerate the most extreme saline conditions in this patch. As such it is assumed that no special status plant species are likely to occur in the high saline fallow fields despite the presence of a mostly monoculture of Quailbush.

In several of the other fallow fields these saline soil indicators are absent, and soil water conditions are likely to be sufficient to support native plant species, including special status plant species if present. These fields mostly supported Quailbush and dense remnant patches (from last year) of five-hook bassia, a common agricultural weed. The soils are finer (more clay and silt) than the coarse sandy soils of the native desert scrub habitats on BLM lands yet there was very little indication of seedling recruitment and no evidence of any native ephemeral species. Several seedlings of five-hook bassia and Russian thistle (*Salsola tragus*) were just starting to germinate during the second March survey suggesting that soil water was available. The presence of large (1-2 foot tall) five-hook bassia from the previous season (which by many accounts was below normal precipitation year) suggests that these areas are likely to exhibit germination and growth of five-hook bassia, but that conditions are just now (April) becoming favorable. Finer texture soils have a higher water holding capacity than coarse texture soils so the absence of very common desert ephemeral species in these fields suggests that environmental conditions are not suitable (e.g. soil texture, salinity levels as evidenced by the Quailbush or competition from non-natives like the five-hook bassia). The high presence of Quailbush in these fields and the relative absence of Quailbush from the native desert scrub communities suggests that soil salinity is likely the primary cause for the absence of native ephemeral species from these fallow fields. The lack of the common ephemeral species strongly suggests that special status species are not likely to be present either.

Thirteen of the special status species addressed for the BLM lands are not expected to occur on a majority of the private lands within the Campo Verde Project area because these areas are under various stages of agricultural use. The only disturbed native upland habitat consists primarily of fallow fields in various stages of succession, with the sole dominant native species being Quailbush with varying densities of non-native agricultural weeds. The saline condition of these soils, inferred from the dominance of Quailbush, also reduces the likelihood for the presence of these species.



The remaining species, California satintail, is not expected to occur in the project area but has a low to moderate potential for occurrence in a side tributary of the New River on the private lands immediately along the northeastern boundary of the solar facility within the project's buffer area. This species was not observed along that tributary though a focused survey was not conducted due to health hazards posed by pollutants in the New River.

**Table 3: Special Status Plant Species Occurring or Potentially Occurring Within the Campo Verde Facility and Gen-tie Line Corridors**

Species Name	Sensitivity Status	Potential for Occurrence
Pygmy lotus ( <i>Acmispon haydonii</i> )	CNPS Rare Plant Rank 1B.3	Occurs in rocky Sonoran Desert scrub. Herbaceous perennial; blooms January – June. Known from In-Ko-Pah Gorge quad (CNPS 2011). Suitable habitat (i.e., rocky/gravelly desert scrub) absent. Site outside of current known range of species and well below reported lower elevational range (520m) (CNPS 2011). This species was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Chaparral sand verbena ( <i>Abronia villosa</i> var. <i>aurita</i> )	BLM: Sensitive CDFG: Special Plant CNPS Rare Plant Rank 1B.1	Occurs in sandy floodplains or flats in generally, inland arid areas of sage scrub and open chaparral and desert dunes (Reiser 2001; CNPS 2011). Annual; blooms January – September (CNPS 2011). Known from Calexico, Seeley, and Superstition Mountains quads (CNPS, 2010). Marginal dune habitat present within native habitats in Campo Verde project area. This species was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Watson's amaranth ( <i>Amaranthus watsonii</i> )	CDFG: Special Plant CNPS Rare Plant Rank 4.3	Occurs in Sonoran Desert Scrub. Annual; blooms August – September. Not observed but survey occurred outside of traditional blooming period. Suitable habitat present within native desert scrub in Campo Verde project area. Known from Calexico and Heber quads (CNPS 2011). Low to moderate potential for occurrence within desert scrub habitats. Surveys for this species will be conducted in appropriate habitat within its blooming season in 2012.
Salton milk vetch ( <i>Astragalus crotalariae</i> )	CDFG: Special Plant CNPS Rare Plant Rank 4.3	Occurs in sandy or gravelly Sonoran Desert scrub habitat and is known from the Superstition Mountains quad. This herbaceous perennial blooms from January to April (CNPS 2011). Potential habitat present within Campo Verde project area. This species was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Harwood's milk vetch ( <i>Astragalus insularis</i> var. <i>harwoodii</i> )	CDFG: Special Plant CNPS Rare Plant Rank: 2.2	Occurs in Sonoran Desert scrub with gravelly, sandy washes or dunes (Reiser, 2001). Annual; blooms January-May (CNPS 2011). Known from southwest of Plaster City between S-80 and I-80 (URS 2010). Also known from In-Ko-Pah Gorge and Coyote Wells quads (CNPS 2011). Habitat (sandy dunes) present within native desert scrub in survey. Known from Coyote Wells quad (CNPS 2011). This species was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Borrego milk vetch ( <i>Astragalus lentiginosus</i> var. <i>borreganus</i> )	CDFG: Special Plant CNPS Rare Plant Rank 4.3	Occurs in sandy Sonoran Desert scrub habitat and is known from the Shell Reef quad in upper Borrego Valley and from the Algodones Dunes on East Mesa. This herbaceous perennial blooms from

**Table 3: Special Status Plant Species Occurring or Potentially Occurring Within the Campo Verde Facility and Gen-tie Line Corridors**

		February to May (CNPS 2011). Potential habitat present This species was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Peirson's milk vetch ( <i>Astragalus magdalenae</i> var. <i>peirsonii</i> )	USFWS: Threatened CDFG: Endangered BLM: Sensitive CNPS Rare Plant Rank 1B.2	Occurs in desert dunes habitat, this species is known from fewer than 10 occurrences. Known from Algodones Dunes on East Mesa and upper Borrego Valley. A herbaceous perennial that blooms from December to April (CNPS 2011). Marginal dune habitat present. This species was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Desert ayenia ( <i>Ayenia compacta</i> )	CDFG: Special Plant CNPS Rare Plant Rank: 2.3	Occurs in rocky Sonoran Desert scrub. An herbaceous perennial that blooms from March to April (CNPS 2011). Closest reported populations include Jacumba and Sweeney Pass. This species not expected to occur in the Campo Verde project area due to the lack of suitable habitat, i.e., rocky areas. Known populations are well west of the corridor in the rocky mountains above the Yuha Basin. This species was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Little-leaf elephant ( <i>Bursera microphylla</i> )	CDFG: Special Plant CNPS Rare Plant Rank: 2.3	Occurs in alluvial fan scrub (Reiser 2001) and rocky areas in Sonoran Desert scrub. Deciduous tree; blooms June-July (CNPS 2011). Not observed within Campo Verde project area during survey. Distinctive tree species would have been observed during surveys if present. Nearest location in In-Ko-Pah Gorge, Sweeney Pass and Arroyo Tapiado quads (CNPS, 2011). Alluvial fan scrub habitat and rocky scrub absent in the Campo Verde project area. Closest sites are in rocky desert foothills to west of site. Species is not expected to occur within project area.
Fairy duster ( <i>Calliandra eriophylla</i> )	CDFG: Special Plant CNPS Rare Plant Rank 2.3	Occurs in Sonoran Desert scrub primarily on rocky hillsides and bajadas (Reiser, 2001; CNPS 2011). Deciduous shrub; blooms January – March (CNPS 2011). One CNDDDB occurrence south of the Campo Verde project area which is also likely the Yuha Basin Quad location reported by CNPS (2011). Most occurrences of this species in East Mesa of Imperial County (CNPS 2011). Not observed during the March 2012 surveys which were conducted during this species traditional flowering period. Not expected to occur due to absence of suitable habitat in Campo Verde project area.
Crucifixion thorn ( <i>Castela emoryi</i> )	CDFG: Special Plant CNPS Rare Plant Rank 2.3	Occurs in playas and gravelly areas in Sonoran Desert scrub. Deciduous shrub; blooms April – July (CNPS 2011). Not observed during the surveys. Distinctive shrub species would have been observed if present. Not expected to occur. Suitable habitat (i.e., playas and gravelly areas) absent in Campo Verde project area. Known from Yuha Basin and Coyote Wells quads (CNPS 2011).
Peirson's pincushion ( <i>Chaenactis carphoclinia</i> var. <i>peirsonii</i> )	BLM: Sensitive CDFG: Special Plant CNPS Rare Plant Rank 1B.3	Occurs in sandy Sonoran Desert scrub. Annual; blooms March-April. Known only from the eastern Santa Rosa Mountains with closest reported location from the Borrego Mountain SE quad (CNPS 2011). Suitable habitat present in Campo Verde project area. This species was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Abram's spurge	CDFG: Special Plant	Occurs in sandy Sonoran Desert scrub. Annual; blooms September –

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<i>(Chamaesyce abramsiana)</i>	CNPS Rare Plant Rank 2.2	November (CNPS 2011). Suitable habitat present in Campo Verde project area. Historical collections known from Calexico, Heber and Brawley quads (CNPS, 2011). Not observed during focused survey for this species in October 2011 which was conducted during this species' traditional flowering period. However, late summer and fall rains may have been insufficient for seeds to germinate this year. Low potential to occur in native desert scrub habitats in Campo Verde project area.
Arizona spurge <i>(Chamaesyce arizonica)</i>	CDFG: Special Plant CNPS Rare Plant Rank 2.3	Occurs in sandy Sonoran Desert scrub. Known from the In-Ko-Pah Gorge Quad, this species is undocumented in Imperial County. This herbaceous perennial blooms from March to April (CNPS 2011). Not expected to occur within Campo Verde project area. Though suitable habitat is present, Campo Verde project area is outside of this species current known range. This species was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Flat-seeded spurge <i>(Chamaesyce platysperma)</i>	BLM: Sensitive CDFG: Special Plant CNPS Rare Plant Rank 1B.2	Occurs in desert dunes and sandy Sonoran Desert scrub. Known in California from only four herbarium collections and one collection from Imperial County in 1987 (CNPS 2011). Annual; blooms February – September. Known from Superstition Mountain and Kane Springs quads in Imperial County (CNPS 2011). Not expected to occur within Campo Verde project area. Though marginal suitable habitat for this species exists, species is very rare in Imperial County. This species was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Sand evening primrose <i>(Chylismia arenaria)</i>	CDFG: Special Plant CNPS Rare Plant Rank 2.2	Occurs in sandy or rocky Sonoran Desert scrub. This annual/herbaceous perennial blooms from November–May and is reported from the Quartz Peak quad in the Chocolate Mountains (CNPS 2011). Though suitable habitat is present the reported occurrences of this species are distant from the Campo Verde project area. Low potential for occurrence. This species was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Las Animas colubrina <i>(Colubrina californica)</i>	CNPS Rare Plant Rank 2.3	Occurs in Sonoran Desert scrub (CNPS 2001) often localized around springs and mesic rocky canyon bottoms (Reiser 2001). This deciduous shrub blooms from April-June and is reported from Picacho Peak and Quartz Peak in the Chocolate Mountains (CNPS, 2001). Suitable habitat lacking and site is outside known current distribution. Not expected to occur within Campo Verde project area. Surveys for this species will be conducted in appropriate habitat within its blooming season in 2012.
Spiny abrojo ( <i>Condalia globosa</i> var. <i>pubescens</i> )	CDFG: Special Plant CNPS Rare Plant Rank 4.2	Occurs in Sonoran Desert scrub. This deciduous shrub blooms from March-May. This species is reported from Imperial County but no quad data is available (CNPS 2011). Suitable habitat is present in the Campo Verde project area. This species was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Wiggins croton ( <i>Croton wigginsii</i> )	BLM: Sensitive CDFG Rare CNPS Rare Plant Rank 2.2	Occurs in desert dunes and Sonoran Desert scrub. Shrub; blooms March – May. CNPS reports species restricted to Algodones Dunes and all CNPS locations are on the East Mesa (CNPS 2011). Known from near Plaster City between S-80 and I-80 (URS, 2010). Marginal suitable habitat present (i.e. desert dunes), but dunes are result of human creation and site and is outside of species range. This species

**Table 3: Special Status Plant Species Occurring or Potentially Occurring Within the Campo Verde Facility and Gen-tie Line Corridors**

		was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Ribbed cryptantha ( <i>Cryptantha costata</i> )	CDFG: Special Plant CNPS Rare Plant Rank: 4.3	Occurs in desert sand dunes and sandy desert scrub. Annual; blooms February – May (CNPS 2011). Reiser (2001) reports an old historical collection from Pinto Wash. Marginal suitable habitat within Campo Verde project area. This species was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Wolf's cholla ( <i>Cylindropuntia wolffi</i> )	BLM: Sensitive CDFG: Special Plant CNPS Rare Plant Rank 4.3	Occurs in Sonoran Desert scrub, usually on alluvial fans or rocky slopes (Reiser 2001). Stem succulent that blooms from March-May. Known from San Diego and Imperial counties and Baja, California (CNPS 2011). Known from Pinto Wash south of the IV substation. This species was not observed during the March 2012 surveys which were conducted during this species traditional flowering period. This species is not expected to occur within Campo Verde project area.
Glandular ditaxis ( <i>Ditaxis claryana</i> )	CDFG: Special Plant CNPS Rare Plant Rank 2.2	Occurs in sandy Sonoran Desert scrub. Herbaceous perennial; blooms October – March. Known from Algodones Dunes. Ogliby and Iris quads are closest reported populations (CNPS 2011). Not observed during the October 2011 or the March 2012 surveys were both conducted during this species traditional blooming period. This species is not expected to occur, as Campo Verde project area is outside of known range.
California ditaxis ( <i>Ditaxis serrata</i> var. <i>californica</i> )	CDFG: Special Plant CNPS Rare Plant Rank 3.2	Sonoran Desert scrub. Herbaceous perennial, blooms March-December. Nearest known occurrence Clark Lake Quad in northern Anza Borrego State Park. Most of the other locations reported along the I-10 corridor between Indio and Blythe (CNPS 2011). Not observed during the October 2011 or the March 2012 surveys both of which were conducted during this species traditional flowering period. This species is not expected to occur within the Campo Verde project area.
Rock nettle ( <i>Eucnide rupestris</i> )	CDFG: Special Plant CNPS Rare Plant Rank 2.2	Sonoran Desert scrub. Annual; blooms December – April. Known from Mount Signal and Coyote Wells quads (CNPS 2011). CNDDDB occurrence in Yuha Basin (likely CNPS Coyote Wells quad location). Suitable habitat present in Campo Verde project area. This species was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Utah vine milkweed ( <i>Funastrum utahense</i> )	CDFG: Special Plant CNPS Rare Plant Rank: 4.2	Occurs in sandy or gravelly Sonoran Desert Scrub. Herbaceous, perennial growing on desert shrubs; blooms April – June (CNPS 2011). Known from southwest of Plaster City between S-80 and I-80 (URS 2010). Suitable habitat present in Campo Verde project area. Known from Yuha Basin south of S80. Low to moderate potential for occurrence. Surveys for this species will be conducted in appropriate habitat within its blooming season in 2012.
Algodones Dunes sunflower ( <i>Helianthus niveus</i> ssp. <i>tephrodes</i> )	CDFG: Endangered CNPS Rare Plant Rank 1B.2	Occurs in desert dunes and is restricted to the Algodones Dunes of East Mesa. This herbaceous perennial blooms from September-May. Not observed during October 2011 survey or the March 2012 surveys and not expected to occur in Campo Verde project area. . Marginal suitable habitat present (i.e. desert dunes), but dunes are result of human creation and site and is outside of species range.
Curly herissantia ( <i>Herissantia crispa</i> )	CDFG: Special Plant CNPS Rare Plant Rank 2.3	Occurs in Sonoran Desert scrub. Annual- herbaceous perennial; Blooms August – September. Only known from two locations in California, both in San Diego County (Pinto Wash and Mountain

**Table 3: Special Status Plant Species Occurring or Potentially Occurring Within the Campo Verde Facility and Gen-tie Line Corridors**

		<p>Springs Grade) (CNPS 2011). Not known from Imperial County. Suitable habitat present in Campo Verde project area. However, site is well below reported lower elevational range (700m) (CNPS 2011). Not expected to occur due to species known range. Surveys for this species will be conducted in appropriate habitat within its blooming season in 2012.</p>
<p>Pink velvet mallow (<i>Horsfordia alata</i>)</p>	<p>CDFG: Special Plant CNPS Rare Plant Rank 4.3</p>	<p>Occurs in rocky Sonoran Desert scrub. This perennial shrub blooms almost year round from February-December. This species is reported from Imperial County but no quad data is available (CNPS 2011). Suitable habitat (rocky desert scrub) is absent from Campo Verde project area. This species was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.</p>
<p>Newberry's velvet mallow (<i>Horsfordia newberryi</i>)</p>	<p>CDFG: Special Plant CNPS Rare Plant Rank 4.3</p>	<p>Occurs in rocky Sonoran Desert scrub. This perennial shrub blooms almost year round from February-December. This species is reported from the Carrizo Mountain Quad (CNPS 2011). Suitable habitat i.e. rocky areas, is absent in the Campo Verde project area. This species was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.</p>
<p>California satintail (<i>Imperata brevifolia</i>)</p>	<p>CDFG: Special Plant CNPS Rare Plant Rank 2.1</p>	<p>Riparian scrub; desert scrub. Herbaceous perennial; blooms September – May (CNPS 2011). CNDDB occurrence immediately east of Campo Verde project area between Greeson Wash and New River. Not observed during October 2011 survey. Not expected to occur in the BLM lands Campo Verde project area due to the lack of suitable habitat. This species is not expected to occur in the project area as all of the riparian scrub habitats within the project area are associated with irrigation canals and drains that are frequently cleared of vegetation. This species is not expected to occur within the</p>
<p>Baja California ipomopsis (<i>Ipomopsis effusa</i>)</p>	<p>CDFG: Special Plant CNPS Rare Plant Rank 2.1</p>	<p>Occurs in washes in Sonoran desert scrub. Annual; blooms April – June. Only known location in California from Pinto Wash west of the site. Considered a waif in California, more common in Baja, California (CNPS 2011). Suitable habitat present in Campo Verde project area. Not expected in the Campo Verde project area due to known range and rarity in California. Surveys for this species will be conducted in appropriate habitat within its blooming season in 2012.</p>
<p>Slender-leaved ipomopsis (<i>Ipomopsis tenuifolia</i>)</p>	<p>CDFG: Special Plant CNPS Rare Plant Rank 2.3</p>	<p>Occurs in rocky/gravelly Sonoran Desert scrub. Herbaceous perennial; blooms March – May. Known from In-Ko-Pah Gorge and Jacumba quads (CNPS 2011). Suitable habitat, (i.e., rocky/gravelly desert scrub) absent. Site outside of known current range of species. This species was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.</p>
<p>Mountain Springs bush lupine (<i>Lupinus excubitus</i> var. <i>medius</i>)</p>	<p>BLM: Sensitive CDFG: Special Plant CNPS Rare Plant Rank 1B.3</p>	<p>Occurs in Sonoran Desert scrub. Perennial shrub; blooms March – May. Known from In-Ko-Pah Gorge and surrounding quads of desert transition areas (CNPS 2011). Marginal habitat (species range is more in desert transition habitats). Site outside of current species known range and well below reported lower elevational range (425m) (CNPS 2011). This species was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species is not expected to occur</p>

**Table 3: Special Status Plant Species Occurring or Potentially Occurring Within the Campo Verde Facility and Gen-tie Line Corridors**

		within the Campo Verde project area.
Parish's desert-thorn ( <i>Lycium parishii</i> )	CDFG: Special Plant CNPS Rare Plant Rank: 2.3	Occurs in Sonoran Desert scrub with sandy plains and washes. Shrub; blooms March – April. Known from In-Ko-Pah Gorge and Carrizo Mountain quads (CNPS 2011). Reported south of Hwy 98. Suitable habitat present. This species was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Coulter's lyrepod ( <i>Lyrocarpa coulteri</i> )	CDFG: Special Plant CNPS Rare Plant Rank 4.3	Occurs in rocky or gravelly Sonoran Desert scrub. This herbaceous perennial; blooms January – June (Reiser 2001; CNPS 2001). Reiser (2001) reports this species from a number of rocky desert canyons in eastern San Diego County. Suitable habitat (i.e., rocky/boulders) absent. This species was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Brown turbans ( <i>Malperia tenuis</i> )	CDFG: Special Plant CNPS Rare Plant Rank: 2.3	Occurs in sandy, Sonoran Desert scrub. Annual, blooms March – April (CNPS 2011). Several CNDDDB locations in Yuha Basin which correspond to CNPS locations for the Mount Signal, Painted Gorge and Yuha Basin quads (CNPS 2011). Suitable habitat present. This species was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species would still have a low to moderate potential to occur within the Campo Verde project area due to its inconspicuous nature.
Hairy stickleaf ( <i>Mentzelia hirsutissima</i> )	CDFG: Special Plant CNPS Rare Plant Rank: 2.3	Occurs in Sonoran Desert Scrub on rocky hillsides and desert mesas (Reiser 2001; CNPS 2011). Annual; blooms March – May. Known from Mount Signal quad (CNPS 2011). Rocky hillsides absent but desert mesas present. Most of this species' localities in the desert transition areas to the east of the site including localities from In-Ko-Pah Gorge and Sweeny Pass quads (CNPS 2011). This species was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Creamy blazing star ( <i>Mentzelia tridentata</i> )	CDFG: Special Plant CNPS Rare Plant Rank 1B.3	Occurs in rocky, gravelly and sandy desert scrub. Annual; blooms March – May. Known from In-Ko-Pah Gorge quad (CNPS 2011). Suitable sandy scrub habitat present in Campo Verde project area. However, site outside of known range in California and well below lower elevational limit (700 meters) reported for this species (CNPS 2011). This species was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Slender-lobed four o'clock ( <i>Mirabilis tenuiloba</i> )	CDFG: Special Plant CNPS Rare Plant Rank: 4.3	Occurs in Sonoran Desert Scrub. A herbaceous perennial that blooms March – May. This species is reported from the 17 Palms Quad (CNPS 2011). Suitable desert scrub habitat present in Campo Verde project area. This species was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area...
Slender wooly-heads ( <i>Nemacaulis denudata</i> var. <i>gracilis</i> )	CDFG: Special Plant CNPS Rare Plant Rank: 2.2	Occurs in desert dunes and Sonoran Desert scrub. Annual; blooms March – May. Known from Coyote Wells quad. Most of locations for this species are in Algodones Dunes of East Mesa (CNPS 2011). Marginal dune habitat present. This species was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Giant Spanish-needle	BLM: Sensitive	Occurs in desert dunes. Annual- herbaceous perennial; blooms

**Table 3: Special Status Plant Species Occurring or Potentially Occurring Within the Campo Verde Facility and Gen-tie Line Corridors**

<i>(Palafoxia arida</i> var. <i>gigantea)</i>	CDFG: Special Plant CNPS Rare Plant Rank 1B.3	March – May. Known from Algodones Dunes on the East Mesa (CNPS 2011). Marginal desert dune habitat present. Site is well west of reported range of species. This species was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Sand food ( <i>Pholisma sonorae</i> )	BLM: Sensitive CDFG: Special Plant CNPS Rare Plant Rank 1B.2	Occurs in desert dunes and sandy Sonoran Desert scrub. This herbaceous perennial is parasitic on native desert shrubs and blooms from March – May. This species is known from the Holtville West Quad just east of the corridors and most of the locations are in the Algodones Dunes of the East Mesa (CNPS 2011). Suitable habitat (sandy areas and dunes) is marginal. Surveys for this species will be conducted in appropriate habitat within its blooming season in 2012. This species was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species would have a low to moderate potential for occurrence, as a parasitic plant, it is not always observable and there are numerous host plants present.
Thurber's pilostyles ( <i>Pilostyles thurberi</i> )	CDFG: Special Plant CNPS Rare Plant Rank: 4.3	Herbaceous perennial parasitic on <i>Psorothamnus emoryi</i> a few individuals were observed within the project area; blooms January. Known from Plaster City and Mount Signal (Reiser 2001). Known from southwest of Plaster City between S-80 and I-80 (URS 2010). Known from Pinto Wash south of the IV Substation. Not observed during the surveys which were not conducted during this species traditional blooming period. Three to five individuals of its host <i>Psorothamnus emoryi</i> were observed along the Proposed Gen-Tie route just north of the IV substation. Though no individuals of Thurber's pilostyles were observed on these individuals, the flowers of Thurber's pilostyles may have already been absent. There is a low to moderate potential for this species to occur, and if it does it would be at very low numbers given the population size of its host.
Desert unicorn-plant ( <i>Proboscidea althaeifolia</i> )	CDFG: Special Plant CNPS Rare Plant Rank 4.3	Occurs in sandy, Sonoran Desert scrub. Herbaceous perennial; blooms May – August (CNPS 2011). There are no CNPS or CNDDB locations for this species in the vicinity of the project. Suitable habitat present, low to moderate potential for occurrence within Campo Verde project area. Surveys for this species will be conducted in appropriate habitat within its blooming season in 2012.
Desert spike-moss ( <i>Selaginella eremophila</i> )	CDFG: Special Plant CNPS Rare Plant Rank: 2.2	Occurs in rocky or gravelly terrain in Sonoran Desert scrub (Reiser 2001; CNPS 2011). Herbaceous perennial is most conspicuous in May-July (CNPS 2011). Closest reported populations in rocky desert scrub of In-Ko-Pah and Sweeney Pass quads (CNPS 2011). Not expected to occur within Campo Verde project area due to the lack of suitable habitat. Surveys for this species will be conducted in appropriate habitat within its blooming season in 2012.
Dwarf germander ( <i>Teucrium cubense</i> ssp. <i>depressum</i> )	CDFG: Special Plant CNPS Rare Plant Rank: 2.2	Occurs in sandy washes, streams and wet soils, Sonoran Desert scrub. Annual; blooms March – May (September- November if fall rains occur). Known from Coyote Wells quad (CNPS 2011). Not observed or expected in Campo Verde project area. Suitable habitat (i.e., sandy washes) absent. Not observed during surveys. October 2001 survey and March 2012 surveys conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde Project area.
Mecca aster ( <i>Xylorhiza cognata</i> )	CDFG: Special Plant CNPS Rare Plant Rank 1B.2	Occurs in Sonoran Desert scrub. This species is known from 17 Palms Quad. This herbaceous perennial blooms from January-June. Most of the reported occurrences are in the Indio and Mecca Hills surrounding Palm Springs and Indio (CNPS 2011). Suitable habitat present, but site may also be at limits of known species range. This

**Table 3: Special Status Plant Species Occurring or Potentially Occurring Within the Campo Verde Facility and Gen-tie Line Corridors**

		species was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.
Orcutt's woody-aster ( <i>Xylorhiza orcuttii</i> )	BLM: Sensitive CDFG: Special Plant CNPS Rare Plant Rank: 1B.2	Occurs in Sonoran Desert scrub in rocky canyons and sandy washes (Reiser 2001). Herbaceous perennial; blooms March – April (CNPS 2011). Closest reported localities are Carrizo and Borrego Mountain quads, areas of rocky terrain. Suitable habitat absent. This species was not observed during the March 2012 surveys which were conducted during this species traditional blooming period. This species is not expected to occur within the Campo Verde project area.

Sensitivity Status Codes used in this table:

USFWS: Endangered- Plant taxa that are listed as threatened under the Federal Endangered Species Act

CDFG: Endangered- Plant taxa that are listed as endangered with extinction under the California Endangered Species Act

Special Plant: Plant taxa that are inventoried by the CNDDDB

BLM: Sensitive- Plants that are designated by the State Director for special management consideration.

CNPS: Rare Plant Rank 1: Rare, Threatened or Endangered in California and elsewhere

Rare Plant Rank 2: Rare, Threatened or Endangered in California, more common elsewhere

Rare Plant Rank 3: Plants for which more information is needed

Rare Plant Rank 4: Plants of Limited Distribution

Threat extension: .1- Seriously endangered in California

2- Fairly endangered in California

3- Not very endangered in California