

**SYCAMORE AVENUE
PROJECT SITE**

(APN Numbers 0131-111-05, 0131-111-07, 0131-111-75, & 0131-111-76)

**Focused Survey for the
Delhi Sands Flower-loving Fly**

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TE-006559-7

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SYCAMORE AVENUE PROJECT SITE

Focused Survey for the Delhi Sands Flower-loving Fly

October 2, 2018

Introduction

This report presents the results of a focused survey for the Delhi Sands Flower-loving Fly (*Rhaphiomidas terminatus abdominalis*) on an approximately 4.7-acre site located in the City of Rialto, San Bernardino County. This property is under consideration for residential development in the future. The County of San Bernardino and the U.S. Fish and Wildlife Service require that focused surveys be conducted to determine whether this proposed development would impact this federally endangered insect. This survey, conducted by Powell Environmental Consulting, resulted in negative findings. Previous surveys were conducted upon the site. In 2003 two male Delhi Sands Flower-loving Flies were observed upon the northeastern area of the site. Surveys were conducted by Powell Environmental Consultants upon the site in 2016 and 2017. Those surveys resulted in negative findings.

Site Description

The 4.7-acre site is located near the city of Rialto, on a portion of the northwest central area of Section 13, Township 1 South, Range 5 West; San Bernardino Baseline and Meridian; USGS 7.5' San Bernardino South Quad (See Maps 1 & 2). It is rectangular in outline. The site sits on the northeastern corner of Acacia Avenue and Randall Avenue (APN Numbers 0131-111-05, 0131-111-07, 0131-111-75, & 0131-111-76). The site is relatively flat and its elevation is approximately 1,150 feet above sea level. Adjacent to the north and south areas of the site are houses. Across Sycamore Avenue, to the west, are houses. East of the site is an open field.

According to a soil map (U.S. Department of Agriculture, Soil Conservation Service, Soil Survey of San Bernardino County Southwestern Part, California, 1980.), the site possesses Delhi Fine Sand (Db). The Delhi fine sands is a "nearly level to strongly sloping soil on alluvial fans that have been reworked by wind action." (U.S. Department of Agriculture, Soil Conservation Service, Soil Survey of San Bernardino County Southwestern Part, California, 1980.). Based upon my field examination I generally concur with the soil map.

There are large areas of open Delhi sands scattered throughout the project site. There was very little vegetation growing upon the site – under 5% of the soil was covered by vegetation.

The most abundant plant observed growing upon the site was sacred datura (*Datura wrightii*). There were a few trees scattered upon the site. Of the Delhi Sands Flower-loving Fly "indicator" plants only annual bursage (*Ambrosia acanthicarpa*) was observed growing upon the site.

Disturbances observed on the site include the invasion of non-native plant and animal species and minor trash dumping.

Delhi Sands Flower-loving Fly Background Information

The Delhi Sands Flower-loving Fly (*Rhaphiomidas terminatus abdominalis*) (family Mydidae) was listed as an endangered species under the Endangered Species Act, as amended on September 23, 1993. The California Natural Diversity Data Base lists the DSFLF rank as being: G1T1S1 - Federally listed as being extremely endangered (G1); found only in California (T1); and as being extremely endangered in California (S1).

The Delhi Sands Flower-loving Fly is considered to be endangered primarily because of the loss of its habitat, mainly due to the habitat's conversion to agricultural, residential, and industrial uses. Its historic range has been reduced by over approximately 97% (USFWS, 1993). The fly is known only to inhabit areas where Delhi series soils are located. These soils consist of fine, sandy soils, often forming wholly or partially consolidated dunes, located in an irregular 40 square mile area, in southwestern San Bernardino and northwestern Riverside Counties (Soil Conservation Service, 1980).

Fine unconsolidated soils are required for oviposition. The female fly inserts the end of her abdomen deep into the soil to lay her eggs (Rogers and Mattoni, 1993). The life history of the larval stages are unknown, however, it is presumed, that the larvae develop underground (Greg Ballmer, D. Hawks, pers. comm.). The Delhi Sands Flower-loving Fly's adult flight period lasts approximately ten weeks from late June through mid-September. The adult is approximately 1 inch long, tan to orange-brown in color, with dark brown bands and spots upon its abdomen. Its wings are hyaline. It has large green eyes and a long slender proboscis, which it has been seen to use to feed upon nectar from California buckwheat and telegraph weed. The adults frequent open areas, usually near unconsolidated soil. The adult males patrol open areas looking for females to mate with. The females are more sedentary and perch upon plants or sit upon the ground for long periods. Adults are most often observed from 9 or 10 AM until 3 or 4 PM.

The DSFLF is frequently associated with certain plants: California buckwheat (*Eriogonum fasciculatum*), California croton (*Croton californicus*), annual bursage (*Ambrosia acanthicarpa*), and telegraph weed (*Heterotheca grandiflora*), sometimes called "indicator plants". Other native plant species also occur in DSFLF habitat: California evening primrose (*Oenothera californica*), deerweed (*Lotus scoparius*), lessinga (*Lessingia glandulifera*), rancher's fiddleneck (*Amsinckia menziesii*), sapphire woolly-star (*Eriastrum saphirinum*), and Thurber's buckwheat (*Eriogonum thurberi*)

Delhi Sands Flower-loving Fly Recovery Plan

In 1997 the U.S. Fish and Wildlife Service issued the final recovery plan for the Delhi Sands Flower-loving Fly (USFWS, 1997). The plan establishes three recovery units: the Colton, Jurupa, and Ontario Recovery Units. The Colton Recovery Unit contains the most known habitat, followed by the Jurupa Recovery Unit. Of the three recovery units, the Ontario Recovery Unit contains the least suitable habitat. Most of the Ontario Recovery Unit's habitat has been

degraded by long-term agricultural use and much of the remainder of “suitable” habitat is highly fragmented and is in very close proximity to residential, commercial, or industrial development. While the fly is known to occur in the Ontario Recovery Unit, the possibility of using the Ontario Recovery Unit to protect the Delhi Sands Flower-loving Fly is limited because of its prior history and fragmented nature.

The Sycamore Project site is located within the Colton Recovery Unit.

Methods

Prior to the initiation of the focused survey, the Carlsbad Field Office of the USFWS was notified on June 28, 2018 of Powell Environmental Consultant’s intent to perform the survey. This focused survey was initiated on July 2, 2018 and continued with biweekly site surveys until September 19, 2018. All field surveys and activities associated with this study were conducted in accordance with the Interim General Guidelines for the Delhi Sands Flower-loving Fly and conditions set forth in the surveyors 10(a)(1)(A) permits. Surveys were conducted by entomologists Dale Powell PhD and Jun Powell (authorized under permit TE-006559-7). Survey dates and times, ambient air temperatures, wind speed, general weather conditions, insect families/species detected, and other pertinent field data were recorded on field survey forms and are included in Table 1 and in the Appendices.

Results and Discussion

No Delhi Sands Flower-loving Flies were observed on the project site during the focused survey. Other species of insect fauna which are relatively closely related to the fly and which are associated with Delhi sands were observed upon the site. Another member of the family Mydidae and other members of the closely related family Asilidae were noted as well. These insects are frequently associated with the Delhi Sands Flower-loving Fly and can be considered indicators that the site may have potential as suitable fly habitat, even though the site has been altered by various disturbances. The site had been cleared of vegetation earlier in the year before the survey season began and very few plants were observed growing upon the site. Of the Delhi Sands Flower-loving Fly “indicator” plants only annual bursage was observed growing upon the site.

Delhi Sands Flower-loving Fly Survey Results

Date	Time	Minutes Surveyed	Weather (at start)	Temp (°F)	Wind (mph) aver*/max
7/2/18 ²	11:55-12:25	30	Clear	83°	5/8
7/5/18 ³	12:00-12:20	40	Clear	97°	4/7
7/9/18 ³	11:55-12:20	50	Haze	98°	4/7
7/11/18 ³	12:00-12:25	50	Partly Cloudy	92°	1/3
7/16/18 ¹	12:35-13:00	25	Clear	92°	3/6
7/19/18 ²	12:05-12:35	30	Clear	95°	2/4
7/23/18 ¹	10:15-10:45	30	Clear	95°	2/4
7/26/18 ²	09:45-10:15	30	Clear	89°	1/3
7/30/18 ¹	10:15-10:45	30	30% Clouds	86°	2/4
8/1/18 ¹	12:30-13:00	30	Clear	97°	2/4
8/6/18 ¹	12:10-12:40	30	Clear	93°	2/4
8/8/18 ¹	12:15-12:45	30	Haze	95°	2/4
8/13/18 ¹	12:05-12:35	30	Clear	89°	3/7
8/15/18 ¹	12:00-12:30	30	Clear	89°	4/6
8/20/18 ¹	10:55-12:20	25	Clear	86°	2/4
8/22/18 ¹	11:35-12:05	30	Clear	86°	2/4
8/27/18 ³	13:15-13:35	40	Clear	80°	4/6
8/29/18 ²	11:35-12:00	25	30% Clouds	85°	1/3
9/3/18 ¹	11:55-12:20	25	Clear	81°	3/5
9/5/18 ¹	11:40-12:05	25	Clear	80°	3/5
9/10/18 ¹	11:40-12:10	30	Clear	86°	1/3
9/12/18 ¹	11:50-12:20	30	Clear	80°	0/0
9/17/18 ¹	11:50-12:15	25	Clear	83°	2/4
9/19/18 ²	11:40-12:10	30	Clear	75°	1/3

¹ Dale Powell

² Jun Powell

³ Dale and Jun Powell

* Over a 20 second period.

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- U.S. Fish and Wildlife Service. 1997. Final Recovery Plan for the Delhi Sands Flower-loving Fly (*Rhaphiomidas terminatus abdominalis*). U.S. Fish and Wildlife Service, Portland, OR. 51 pp.

APPENDIX

SUBCONTRACTOR CONCURRENCE

I, Dale A. Powell, having performed focused surveys for the Delhi Sands Flower-loving Fly for the Sycamore Avenue Project site, Rialto, have entirely read and reviewed the final report for the project and concur with the statements and conclusions made.

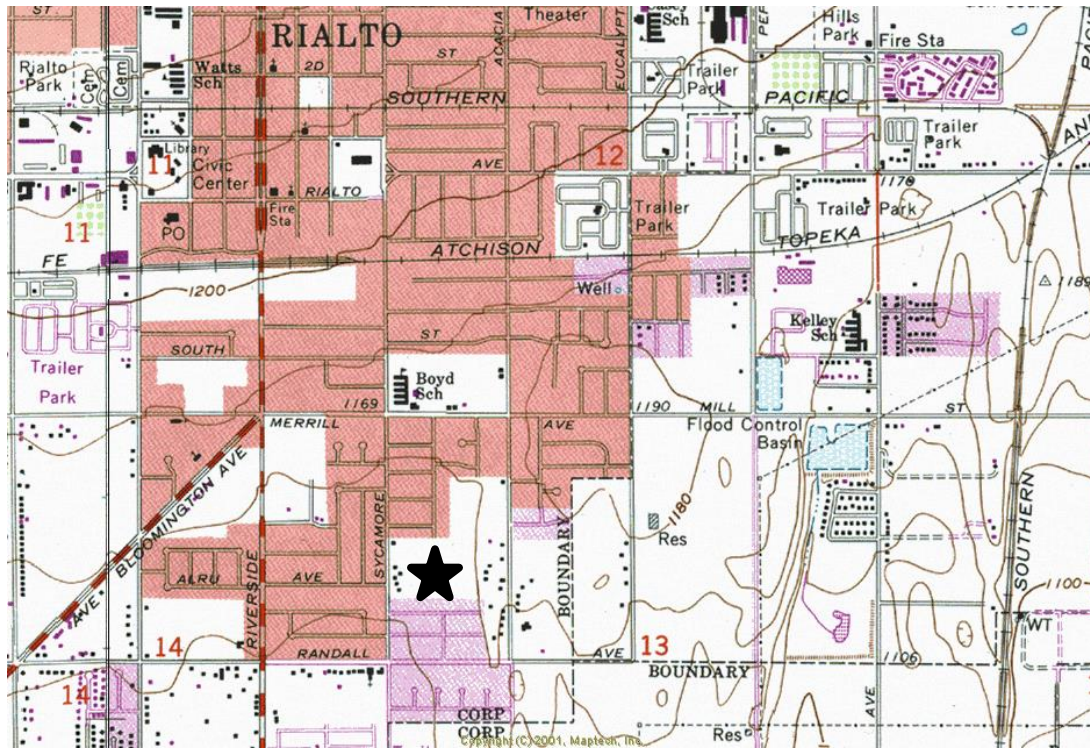
Dale A. Powell 10/3/2018
SIGNATURE DATE

I, Jun R. Powell, having performed focused surveys for the Delhi Sands Flower-loving Fly for the Sycamore Avenue Project site, Rialto, have entirely read and reviewed the final report for the project and concur with the statements and conclusions made.

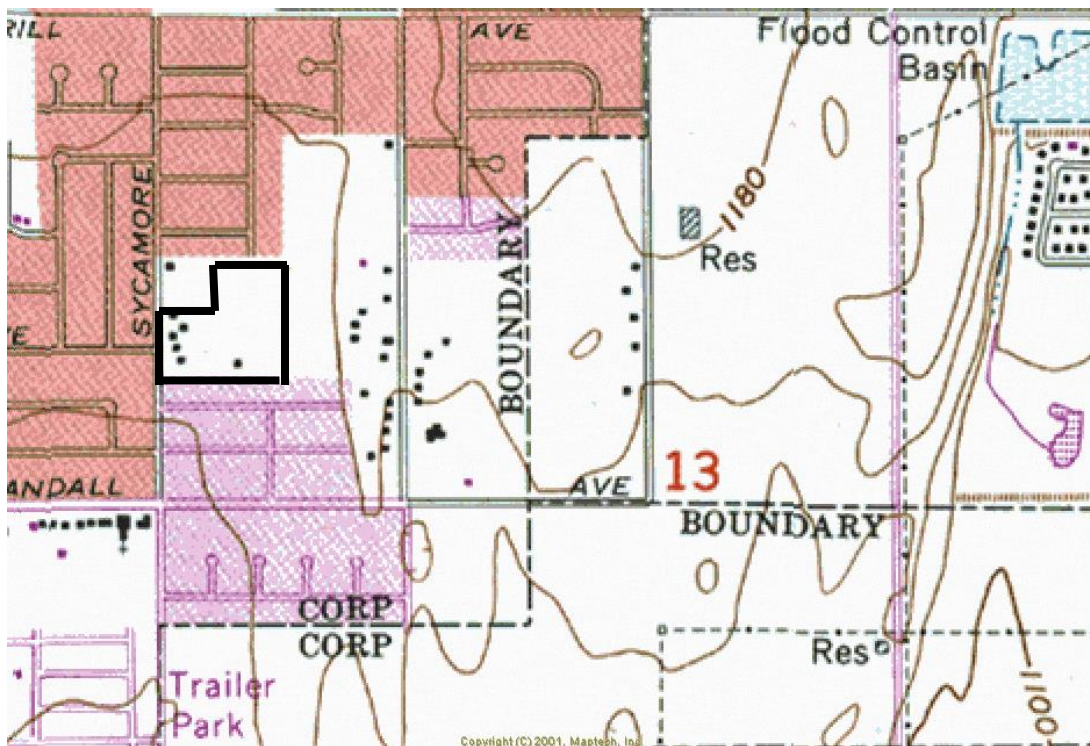
Jun R. Powell 10/3/2018
SIGNATURE DATE

APPENDIX

Map 1. General location of the Verde Vistas' Sycamore Avenue Project.



Map 2. Location of the Verde Vistas' Sycamore Avenue Project.



SYCAMORE AVENUE PROJECT SITE

Picture 1. Overview of the site facing north from the southwestern corner of the site.



Picture 2. Overview of the site facing northesast from the southwestern corner of the site.



SYCAMORE AVENUE PROJECT SITE

Picture 3. Overview of the site facing east from the southwestern corner.



FIELD NOTES

Delhi Sands Flower-loving Fly

Dale and Jun Rong Powell

Site: Sycamore Avenue

Date		9:00	10:00	11:00	NOON	1:00	2:00	3:00
7/2/18	Temp				83°			
Week	Wind				5/8			
1	Weath				clear			
7/5	Temp				96°			
Week	Wind				4/7			
1	Weath				clear			
7/9	Temp				98°			
Week	Wind				4/7			
2	Weath				Haze			
7/11	Temp				92°			
Week	Wind				1/3			
2	Weath				PC			
7/16	Temp				92°			
Week	Wind				3/6			
3	Weath				clear			
7/19	Temp				95°			
Week	Wind				2/4			
3	Weath				clear			
7/23	Temp		91°					
Week	Wind		2/4					
4	Weath		clear					
7/26	Temp		89°					
Week	Wind		1/3					
4	Weath		clear					
7/30	Temp		86°					
Week	Wind		2/4					
5	Weath		30% clouds					
8/1	Temp				99°			
Week	Wind				2/4			
5	Weath				clear			
8/6	Temp				93°			
Week	Wind				2/4			
6	Weath				clear			
8/8	Temp				95°			
Week	Wind				2/4			
6	Weath				Haze			
8/13	Temp				89°			
Week	Wind				3/7			
7	Weath				clear			

Smoky-Fine

Wind: First number is average (20 seconds) / second number is maximum.

Delhi Sands Flower-loving Fly

Dale and Jun Rong Powell

Site: Sycamore Avenue

Date		9:00	10:00	11:00	NOON	1:00	2:00	3:00
8/15/18	Temp				89°			
Week	Wind				4/6			
7	Weath				Clear			
8/20	Temp				86°			
Week	Wind				2/4			
8	Weath				Clear			
8/22	Temp				86°			
Week	Wind				2/4			
8	Weath				Clear			
8/27	Temp			78°		88°		
Week	Wind					4/6		
9	Weath					Clear		
8/29	Temp				86°			
Week	Wind			1/3	1/3			
9	Weath			20% clouds	30% clouds			
9/3	Temp				81°			
Week	Wind				2/5			
10	Weath				Clear			
9/5	Temp				80°			
Week	Wind				3/5			
10	Weath				Clear			
9/10	Temp				86°			
Week	Wind				1/3			
11	Weath				Clear			
9/12	Temp				80°			
Week	Wind				0/0			
11	Weath				Clear			
9/17	Temp				83°			
Week	Wind				2/4			
12	Weath				Clear			
9/19	Temp				75°			
Week	Wind				1/3			
12	Weath				Clear			
	Temp							
Week	Wind							
	Weath							
	Temp							
Week	Wind							
	Weath							

Wind: First number is average (20 seconds) / second number is maximum.

Delhi Sands Flower-loving Fly J D J D **Dale and Jun Rong Powell** J D J D

Dale and Jun Rong Powell

[illegible]

Delhi Sands Flower-loving Fly

Dale and Jun Rong Powell

[illegible]

lower-living Fly

Dale and Jun Rong Powell

Sycamore Ave	8/27/08	9/3	9/5	9/10	9/12	9/17	9/19
Coleoptera							
Carabidae							
Chrysomelidae	✓	✓	✓	✓	✓	✓	✓
Coccinellidae							
Curculionidae							
Rhipiphoridae							
Scarabaeidae	✓	✓	✓	✓	✓	✓	✓
Tenebrionidae	✓						
Dermaptera							
Diptera							
Apioceridae							
Asilidae							
Bombyliidae				✓	✓		
Calliphoridae							
Chironomidae							
Conopidae							
Muscidae	✓	✓	✓	✓	✓	✓	✓
Mydidae							
Sarcophagidae							
Stratiomyidae							
Syrphidae							
Tabanidae							
Tachinidae							
Hemiptera							
Anthracoridae							
Lygaeidae							
Miridae							
Nabidae							
Pentatomidae							
Reduviidae							
Scutelleridae							
Homoptera							
Aphididae							
Cercopidae							
Cicadellidae							
Cicadidae							
Membracidae							

Lower-living Fly

Dale and Jun Rong Powell

[illegible]