ACACIA AND RANDALL AVENUES NORTH PROJECT SITE

(APN Numbers 0131-131-13 & 0131-131-14)

Focused Survey for the Delhi Sands Flower-loving Fly

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September 28, 2017

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Introduction

This report presents the results of a focused survey for the Delhi Sands Flower-loving Fly (*Rhaphiomidas terminatus abdominalis*) on a 5-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 by Powell Environmental Consultants upon the site in 2004, 2005, 2014, 2015, and 2016. Those surveys resulted in negative findings.

Site Description

The 5-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 east side of Acacia Avenue, a few hundred feet north of Randall Avenue (APN Numbers 0131-131-13 & 0131-131-14). The site is relatively flat and its elevation is approximately 1,165 feet above sea level. Adjacent to the north and to the east of the site are houses. South of the southeastern area of the site is a poultry farm and houses lie south of the southeastern area of the site. Across Acacia Avenue to the west are houses.

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 Dehli 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.

Most of the site is covered by exposed Delhi sands. There is 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 Bermuda grass (Cynodon dactylon). Of the Delhi Sands Flower-loving Fly "indicator" plants only a small number of California croton (Croton californicus) and telegraph weeds (Heterotheca grandiflora) were

observed growing along the western edge of the site. Disturbances observed on the site include discing, 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 six weeks from late July 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 Bur-sage (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 sapphirinum), 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 Acacia and Randall Avenues 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 16, 2017 of Powell Environmental Consultant's intent to perform the survey. This focused survey was initiated on July 2, 2017 and continued with biweekly site surveys until September 19, 2017. 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 entomologist Dale Powell PhD and Jun Powell (authorized under permit TE-006559-6). 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. The closest known observation of the fly in Rialto was approximately 0.1 miles west of this site. One other member of the family Mydidae was observed on the project site. Other species of the closely related families Asilidae and Apioceridae, which are associated with Delhi sands, were observed upon the site 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 total numbers of all insect fauna observed upon the site was lower than during the 2004, 2005, 2014, 2015, or 2016 survey seasons. 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. A small number of the Delhi Sands Flower-loving Fly "indicator" plants California croton (*Croton californicus*) and telegraph weed (*Heterotheca grandiflora*) were observed growing along the western edge of the site.

Delhi Sands Flower-loving Fly Survey Results

Date	Time	Minutes Surveyed	Weather (at start)	Temp (°F)	Wind (mph) aver*/max
7/2/17 ¹	11:35-12:05	30	Clear	90°	0/0
$7/5/17^2$	Surveyed /17¹		5% Clouds	97°	1/2
$7/10/17^2$	10:40-11:10	30	5% Clouds	95°	0/1
$7/13/17^2$	12:15-12:45	30	5% Clouds	94°	2/4
$7/17/17^2$	11:35-12:05	30	Clear	94°	1/2
$7/20/17^2$	10:30-11:00	30	Clear	87°	0/1
$7/24/17^2$	11:40-12:10	30	95% Clouds	80°	2/4
$7/27/17^2$	11:00-11:30	30	5% Clouds	89°	2/4
$7/31/17^2$	11:45-12:15	30	10% Clouds	93°	2/4
$8/3/17^2$	13:10-13:40	30	30% Clouds	96°	3/5
$8/7/17^2$	7/17 ² 11:30-12:00 30		Clear	89°	2/4
$8/10/17^2$	10/17 ² 10:40-11:10 30		Clear	90°	1/2
8/14/171	12:15-12:45	30	Clear	90°	3/5
$8/16/17^2$	10:50-11:20	30	Clear	78°	0/1
8/21/17 ²	10:00-10:30	30	Clear	72°	0/1
8/24/17 ²	11:15-11:45	30	20% Clouds	81°	1/2
8/28/171	11:55-12:25	30	20% Clouds	104°	2/4
8/30/171	11:45-12:15	30	Clear	103°	2/4
9/4/17 ²	11:05-11:35	30	50% Clouds	86°	2/4
9/6/17 ¹	11:30-11:55	25	5% Clouds	89°	2/4
9/11/17 ¹	10:30-10:55	25	20% Clouds	86°	0/0
9/13/17	10:25-10:55	30	Clear	77°	1/3
9/19/171	12:55-13:20	25	40% Clouds	73°	1/3

Dale Powell
 Jun Powell
 Dale and Jun Powell
 Over a 20 second period.

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APPENDIX

SUBCONTRACTOR CONCURRENCE

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

SIGNATURE

9 2 × 2017

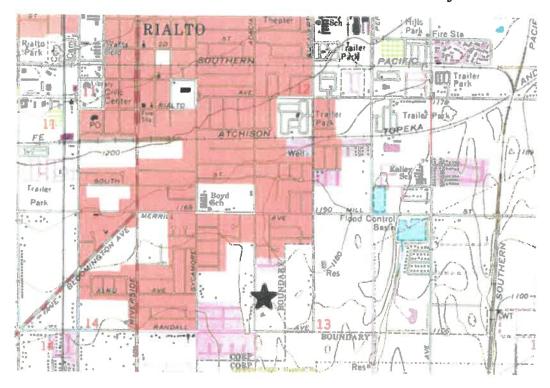
I, Jun R. Powell, having performed focused surveys for the Delhi Sands Flower-loving Fly for the Acacia and Randall Avenues North Project site, Rialto, have entirely read and reviewed the final report for the project and concur with the statements and conclusions made.

Jun R. Powell SIGNATURE

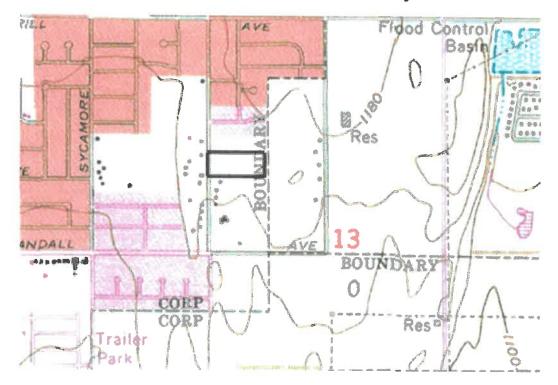
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APPENDIX

Map 1. General location of the Acacia and Randall Avenues North Project.

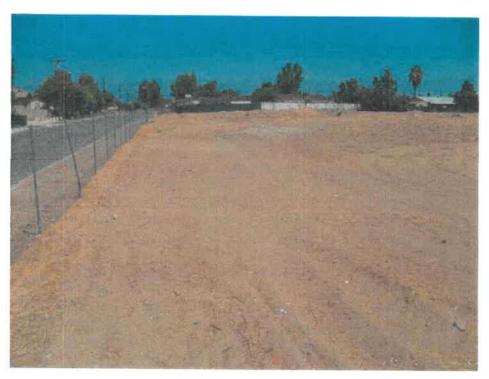


Map 2. Location of the Acacia and Randall Avenues North Project site.



ACACIA AND RANDALL AVENUES NORTH PROJECT SITE

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



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



ACACIA AND RANDALL AVENUES NORTH PROJECT SITE

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



Picture 4. Overview of the site facing east from the northwestern corner.



FIELD NOTES

Delhi Sands Flower-loving Fly

Dale and Jun Rong Powell

Site: Acada Nortin

Date		9:00	10:00	11:00	NOON	1:00	2:00	3:00
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2/10	Temp			90		-		
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Wind: First number is average (20 seconds) / second number is maximum.

Delhi Sands Flower-loving Fly

Dale and Jun Rong Powell

Site: Acacia Worli

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

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ACACIA AND RANDALL AVENUES POULTRY PROJECT SITE

(APN Number 0131-131-23)

Focused Survey for the Delhi Sands Flower-loving Fly

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Dale A. Powell Ph.D.
TE-006559-6

September 28, 2017

ACACIA AND RANDALL AVENUES POULTRY PROJECT SITE

Focused Survey for the Delhi Sands Flower-loving Fly

September 28, 2017

Introduction

This report presents the results of a focused survey for the Delhi Sands Flower-loving Fly (*Rhaphiomidas terminatus abdominalis*) on a 3.89-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. No known previous surveys were conducted upon the site.

Site Description

The 3.89-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 east side of Acacia Avenue, a few hundred feet north of Randall Avenue (APN Number 0131-131-23). The site is relatively flat and its elevation is approximately 1,165 feet above sea level. Adjacent to the north of the site is an open field. To the east of the site are houses. South of the southeastern area of the site is an open field and houses lie south of the southeastern area of the site. Across Acacia Avenue, to the west, are houses. In the eastern portion of the site are poultry houses. In the center of the site is a residential house and buildings with a grassy area to the west with trees and ornamentals growing.

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 Dehli 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 around the buildings. There is very little native vegetation growing upon the site.

The most abundant plant observed growing upon the site was Bermuda grass (Cynodon dactylon) and introduced trees, shrubs, and other ornmentals. Of the Delhi Sands Flower-loving Fly "indicator" plants only a small number of California croton (Croton californicus) and telegraph

weeds (*Heterotheca grandiflora*) were observed. Disturbances observed on the site include discing, 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 six weeks from late July 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 Bur-sage (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 sapphirinum), 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 Acacia and Randall Avenues Poultry 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 July 6, 2017 of Powell Environmental Consultant's intent to perform the survey. This focused survey was initiated on July 2, 2017 and continued with biweekly site surveys until September 19, 2017. 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 entomologist Dale Powell PhD and Jun Powell (authorized under permit TE-006559-6). 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. The closest known observation of the fly in Rialto was approximately 0.1 miles west of this site. No members of the family Mydidae to which the Delhi Sands Flower-loving Fly belongs to or members of the closely related families, Asilidae and Apioceridae, were observed upon the site. 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. A small number of the Delhi Sands Flower-loving Fly "indicator" plants California croton (*Croton californicus*) and telegraph weed (*Heterotheca grandiflora*) were 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
$7/2/17^{1}$	11:05-11:35	30	Clear	88°	0/0
$7/5/17^2$	12:20-12:50	30	5% Clouds	97°	1/2
$7/10/17^2$	11:10-11:30	20	5% Clouds	96°	0/1
$7/13/17^2$	12:45-13:05	20	5% Clouds	94°	2/4
7/17/17 ²	11:10-11:35	25	Clear	94°	1/2
7/20/172	12:00-12:30	30	Clear	91°	1/2
$7/24/17^2$	12:10-12:40	30	100% Clouds	78°	2/4
$7/27/17^2$	10:40-11:00	20	30% Clouds	85°	0/1
$7/31/17^2$	12:15-12:35	20	10% Clouds	93°	2/4
8/3/172	12:50-13:10	20	30% Clouds	96°	2/4
8/7/17 ²	11:10-11:30	20	Clear	88°	1/2
8/10/17 ²	11:10-11:30	20	Clear	90°	1/2
8/14/171	11:55-12:15	20	Clear	90°	3/5
8/16/17 ²	10:30-10:50	30	Clear	76°	0/1
8/21/172	10:30-10:50	20	Clear	72°	0/1
8/24/172	11:45-12:05	20	20% Clouds	82°	1/2
8/28/171	11:30-12:55	25	20% Clouds	101°	1/3
8/30/171	11:25-12:45	20	Clear	102°	2/4
9/4/172	11:35-11:35	20	50% Clouds	86°	2/4
9/6/171	11:05-11:30	25	10% Clouds	87°	2/4
9/11/171	10:55-11:20	25	20% Clouds	88°	0/0
9/13/171	10:00-10:25	25	Clear	76°	1/3
9/19/171			40% Clouds	73°	1/3

Dale Powell
 Jun Powell
 Dale and Jun Powell
 Over a 20 second period.

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APPENDIX

SUBCONTRACTOR CONCURRENCE

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

SIGNATURE

9/28/2017 DATE

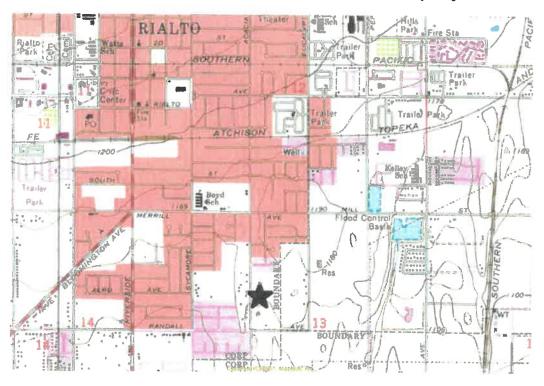
I, Jun R. Powell, having performed focused surveys for the Delhi Sands Flower-loving Fly for the Acacia and Randall Avenues Poultry Project site, Rialto, have entirely read and reviewed the final report for the project and concur with the statements and conclusions made.

Jun R. Powell

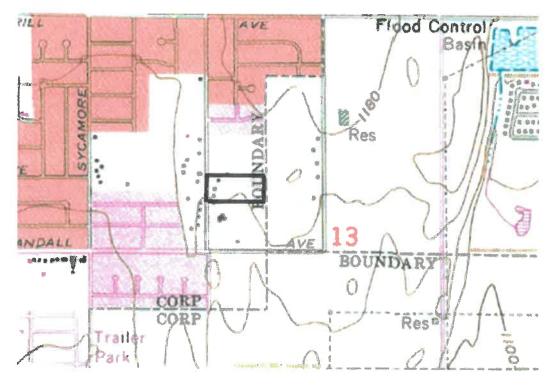
9/28/2017 DATE

APPENDIX

Map 1. General location of the Acacia and Randall Avenues Poultry Project.



Map 2. Location of the Acacia and Randall Avenues Poultry Project site.



ACACIA AND RANDALL AVENUES POULTRY PROJECT SITE

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



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



ACACIA AND RANDALL AVENUES POULTRY PROJECT SITE

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



Picture 4. Overview of the site facing south from the north-central edge.



FIELD NOTES

Delhi Sands Flower-loving Fly

Dale and Jun Rong Powell

Site: Poultry

Date		9:00	10:00	11:00	NOON	1:00	2:00	3:00
7/2/17	Temp			285		1.00	25.00	2.00
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Wind: First number is average (20 seconds) / second number is maximum.

Delhi Sands Flower-loving Fly

Dale and Jun Rong Powell

Site: Pou Hr

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Week	Wind			1/2				
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Wind: First number is average (20 seconds) / second number is maximum,

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Bombyliidae		-	1							+	-	-	-		-	-
Calliphoridae	+	-	-		_	_	_		-	-	-	-	-	-	-1/	-
Chironomidae	_		1			-	-		-	+	-	-	-	-		
Conopidae						-			-	-	_	-	-	-	-	-
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OP - Dale Powell
TP - Jun Parcel

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Jun Paulell

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DP - Dale Panell

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Delhi Sands	Flow	er-lo	ving	Fly	+	*	F			Dak	e and	l Jur	Ro	ng E	owe	Ħ
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DP- Dale Pawell JP- Jun Powell

ACACIA AND RANDALL AVENUES NORTH PROJECT SITE

(APN Numbers 0131-131-13 & 0131-131-14)

Focused Survey for the Delhi Sands Flower-loving Fly

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> Dale A. Powell Ph.D. TE-006559-7

October 2, 2018

ACACIA AND RANDALL AVENUES NORTH 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 a 5-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 by Powell Environmental Consultants upon the site in 2004, 2005, 2014, 2015, 2016, and 2017. Those surveys also resulted in negative findings.

Site Description

The approximately 5-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 east side of Acacia Avenue, a few hundred feet north of Randall Avenue (APN Numbers 0131-131-13 & 0131-131-14). The site is relatively flat and its elevation is approximately 1,165 feet above sea level. Adjacent to the north and to the east of the site are houses. South of the southeastern area of the site is a poultry farm and houses lie south of the southeastern area of the site. Across Acacia Avenue, to the west, are houses.

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.

Most of the site is covered by exposed Delhi sands. There is 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 Bermuda grass (*Cynodon dactylon*). Of the Delhi Sands Flower-loving Fly "indicator" plants only a small number of California crotons (*Croton californicus*) and telegraph weeds (*Heterotheca grandiflora*) were observed growing along the western edge of the site and annual bursages (*Ambrosia*

acanthicarpa) were observed growing in the center of the site. Disturbances observed on the site include disking, 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 six 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*), are 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 sapphirinum*), 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 Acacia and Randall Avenues 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 entomologist 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. The closest known observation of the fly in Rialto was approximately 0.1 miles west of this site. No member of the family Mydidae was observed on the project site. Other species of the closely related families Asilidae and Apioceridae, which are associated with Delhi sands, were observed upon the site. 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 total numbers of all insect fauna observed upon the site was lower than during the 2004, 2005, 2014, 2015, 2016, or 2017 survey seasons. 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. A small number of the Delhi Sands Flower-loving Fly "indicator" plants, California croton (*Croton californicus*), telegraph weed (*Heterotheca grandiflora*), and annual bur-ages (*Ambrosia acanthicarpa*) were observed growing upon the site.

Delhi Sands Flower-loving Fly Survey Results

Date	Time	Minutes	Weather	Temp	Wind (mph)
		Surveyed	(at start)	(°F)	aver*/max
7/2/18 ²	12:35-13:00	25	Clear	86°	3/7
7/5/181	13:00-13:30	30	Clear	98°	4/7
7/9/18 ¹	12:45-13:15	30	Clear	101°	4/8
$7/11/18^2$	13:00-13:25	25	Partly Cloudy	94°	4/8
7/16/18 ¹	14:10-14:35	25	Clear	97°	3/6
7/19/18 ²	13:45-14:05	20	Clear	101°	3/5
$7/23/18^2$	11:45-12:15	30	Clear	96°	3/5
$7/26/18^2$	11:20-11:50	30	Clear	88°	1/3
7/30/18 ²	11:45-12:15	30	30% Clouds	95°	3/5
8/1/18 ²	11:30-12:00	30	Clear	89°	2/4
8/6/18 ²	12:15-12:45	30	Clear	99°	2/4
8/8/18 ²	12:25-12:50	25	Haze	95°	2/4
8/13/18 ²	12:00-12:35	35	Clear	87°	3/5
8/15/18 ²	11:55-12:30	35	Clear	89°	3/7
8/20/18 ¹	12:20-12:55	35	Clear	89°	3/5
8/22/18 ¹	12:10-12:35	25	Clear	86°	3/5
8/27/18 ²	11:35-12:35	60	Clear	78°	3/6
8/29/18 ²	10:15-10:45	30	50% Clouds	79°	0/1
9/3/18 ¹	12:25-12:50	25	Clear	82°	3/5
9/5/18 ¹	12:10-12:35	25	Clear	81°	4/6
9/10/18 ¹	12:15-12:35	20	Clear	88°	2/4
9/12/18 ¹	12:25-12:45	20	Clear	80°	2/4
9/17/18 ¹	12:20-12:45	25	Clear	83°	3/6
9/19/18 ²	10:15-10:45	30	Clear	72°	0/1

Dale Powell
 Jun Powell
 Dale and Jun Powell
 Over a 20 second period.

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APPENDIX

SUBCONTRACTOR CONCURRENCE

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

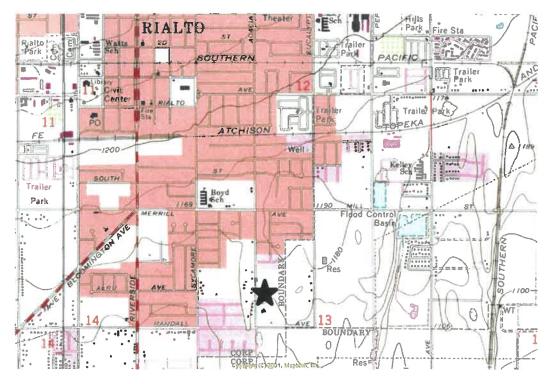
SIGNATURE DATE

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

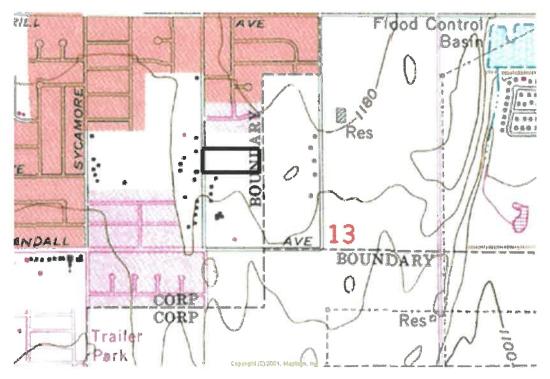
Jim R Powell 10/2/2018
SIGNATURE DATE

APPENDIX

Map 1. General location of the Acacia and Randall Avenues North Project.



Map 2. Location of the Acacia and Randall Avenues North Project site.



ACACIA AND RANDALL AVENUES NORTH PROJECT SITE

Picture 1. Overview of the site facing east from the northwestern corner.



Picture 2. Overview of the site facing southeast from the northwestern corner.



ACACIA AND RANDALL AVENUES NORTH PROJECT SITE

Picture 3. Overview of the site facing south from the northwestern corner.



FIELD NOTES

Delhi Sands Flower-loving Fly

Dale and Jun Rong Powell

Site: Acacia North

Date		9:00	10:00	11:00	NOON	1:00	2:00	3:00
7/2/12	Temp					210		
Week	Wind					3/7		
- (Weath					Clear		
7/5	Temp					970		
Week	Wind					417		
-	Weath					Char		
7/9	Temp					1010		
Week	Wind					49		
2	Weath					clear		
7/u	Temp					940		
Week	Wind					419		
2	Weath					4/8 PC		
7/16	Temp						920	
Week	Wind						970	
3	Weath						Mark	
7/19	Temp						1015	
Week	Wind						3/5	
3	Weath						rleat	
723	Temp				960		1	
Week	Wind				96°			
4	Weath				clear			
7/26	Temp			880				
Week	Wind			1/2				
4.	Weath			Cleux				
2/20	Temp			1,11,12,21,1	950			
Week	Wind				950			
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5.	Weath		class					
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8/8	Temp				250			
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6	Weath				High			
8/13	Temp				000			
Week	Wind				3/5			
9	Weath				Clery			

Smith Fil

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

Delhi Sands Flower-loving Fly

Dale and Jun Rong Powell

Site: Asacia North

Date	GALANTIA STATE	9:00	10:00	11:00	NOON	1:00	2:00	3:00
81718	Temp				800			
Week	Wind				3/7		1	
7	Weath				1/001			
8/20	Temp				890			
Week	Wind				3/8			
8	Weath				Clear			
8/27	Temp				760			
Week	Wind				35			
8	Weath				Clear			
827	Temp				7.80			
Week	Wind				2/6			
9	Weath				Clear			
8/29	Temp		796					
Week	Wind		0/1					
9.	Weath		38 Moud					
93	Temp				\$70			
Week	Wind				3/5			
10	Weath				Clear			
919	Temp				710			
Week	Wind				416			
10	Weath				(10)			
9/10	Temp				88			
Week	Wind				2月			
11	Weath				Clear			
9/12	Temp				80° 2/1			
Week	Wind				2/9			
fa.	Weath				Clear			
917	Temp				730			
Week	Wind				3/6			
12	Weath				Clear			
9/19	Temp		720					
Week	Wind		720					
12	Weath		Clear					
	Temp							
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Wind: First number is average (20 seconds) / second number is maximum.

Delhi Sands I	3/.	21=	24	21.	-1	-10		- 5		100		9.4			owe	
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Chrysomelidae																
Coccinellidae																
Curculionidae										_		_	_	-		
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Diptera				GI ===												
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Bombyliidae							1				1		1	V		1
Calliphoridae																
Chironomidae																
Conopidae												1		,		
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Mydidae																
Sarcophagidae																
Stratiomyidae																
Syrphidae										-		-	-			_
Tabanidae									_			_	_		-	
Tachinidae				_		_		_	_	_	-	_		_		_
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Hemiptera																
Anthocoridae		-	-	-	-			-	-	-					-	
Lygaeidae	_	7		_		-		-								
Miridae	-	~				V										
Nabidae Nabidae	-				-			-	-			_		_		
Pentatomidae	-	-	-		_	_		_								
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Homoptera			-	11	1 3				700			21	7-1	. 30	265	6
Aphididae																
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Cicadidae											\rightarrow				\rightarrow	
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ATOTHOL GOLDERO																

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Acacia North	14.6	75	7/9	7/K	7/16	7/15	743	7/26	700	di	4/2	8/8	8/13	8	8/20	2/2
Hymenoptera								3013				181				Ŭ.
Anthophoridae									100							
Apidae	1	1	1	0	1		J	50	1	V	0	1		1	V	1
Braconidae			*							Ť			-	4	-	
Chrysididae																
Formicidae	J	1	1	./	1	17	1	J	1	7	J	1	1	1	7	1
Halicitidae									-		-		-/-		-	
Ichneumonidae								_								\vdash
Mutillidae			7								_					1
Pompilidae														-		\vdash
Scoliidae										_	-			_	-	-
Sphecidae			7	7		V			1	V	. /	- /	-	7	100	-
Vespidae	V	1				Ť					ž	1	1	_	1	7
Lepidoptera		200	0.0			200	U.E	=200			300	8.10				
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Hesperiidae				_		_		-	0	V		1	. 7	-/	7	/
Lycaenidae							1		7	Ÿ	Y /	1/	4	-V	-	/
Noctuidae			_	_		_	-	_	V	_	V	1/		1	1	-
Nymphalidae	_			_	_	_				-	_		_	-		,
Papilionidae	_	-		-		_			-	-						1
Pieridae		_	-	-	-				-	_	_	-				١.,
Pyralidae			-	-/		V.			1	-		- 1				1
Sphingidae	-		_		-			_	_	_	_					
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Neuroptera	U.B	Miles			411	,937										30.5
Ascalaphidae																
Chrysopidae																
Hemerobiidae																
Myrmeleontidae																
Odonata																
Aeshnidae			_													
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Orthoptera						L. T				020			-/	1		
Acrididae	1	J	1		./	V	1		1	V	/	V	1	J	1	1
Gryllacrididae				/	-1/-		-0			v	- 12	-		-	-	-
Gryllidae															_	_
Mantidae				-											-	_
Tettigoniidae																
OTHER																

Dale and Jun Rong Powell Delhi Sands Flower-loving Fly Acacia North 8/19 9/2 9/5 9/10 9 9 9/19 Coleoptera Carabidae Chrysomelidae Coccinellidae Curculionidae Rhipiphoridae Scarabaeidae Tenebrionidae Dermaptera Diptera Apioceridae Asilidae Bombyliidae Calliphoridae Chironomidae Conopidae V Muscidae Mydidae Sarcophagidae Stratiomyidae Syrphidae Tabanidae Tachinidae Hemiptera Anthocoridae Lygaeidae Miridae Nabidae Pentatomidae Reduviidae Scutelleridae Homoptera Aphididae Cercopidae Cicadellidae Cicadidae Membracidae

Dale and Jun Rong Powell Delhi Sands Flower-loving Fly 8/99/39/59/109 9/19 Acres North Hymenoptera Anthophoridae Apidae Braconidae Chrysididae Formicidae Halicitidae Ichneumonidae Mutillidae Pompilidae Scoliidae Sphecidae Vespidae Lepidoptera Danaidae 15 Hesperiidae Lycaenidae J Noctuidae Nymphalidae Papilionidae Pieridae Pyralidae Sphingidae Neuroptera Ascalaphidae Chrysopidae Hemerobiidae Myrmeleontidae Odonata Aeshnidae V Coenagrionidae Libellulidae V V Orthoptera Acrididae Gryllacrididae Gryllidae Mantidae Tettigoniidae

OTHER

ACACIA AND RANDALL AVENUES POULTRY PROJECT SITE

(APN Number 0131-131-23)

Focused Survey for the Delhi Sands Flower-loving Fly

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October 2, 2018

ACACIA AND RANDALL AVENUES POULTRY 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 a 3.89-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 results. The site was also surveyed in 2017 by Powell Environmental Consultants with negative results.

Site Description

The 3.89-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 east side of Acacia Avenue, a few hundred feet north of Randall Avenue (APN Number 0131-131-23). The site is relatively flat and its elevation is approximately 1,165 feet above sea level. Adjacent to the north of the site is an open field. To the east of the site are houses. South of the southeastern area of the site is an open field and houses lie south of the southeastern area of the site. Across Acacia Avenue, to the west, are houses. In the eastern portion of the site are poultry houses. In the center of the site is a residential house and buildings with a grassy area to the west with trees and ornamentals growing upon it.

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 around the buildings. There is very little native vegetation growing upon the site.

The most abundant plant observed growing upon the site was Bermuda grass (*Cynodon dactylon*) and introduced trees, shrubs, and other ornamentals. Of the Delhi Sands Flower-loving Fly "indicator" plants only a small number of California croton (*Croton californicus*) and telegraph

weeds (*Heterotheca grandiflora*) were observed. Disturbances observed on the site include the invasion of non-native plant and animal species, pedestrian and motor vehicle traffic, 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*), are 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 sapphirinum*), 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 Poultry 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 entomologist Dale Powell PhD and Jun Powell (authorized under permit TE-006559-6). 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. The closest known observation of the fly in Rialto was approximately 0.1 miles west of this site. 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. A small number of the Delhi Sands Flower-loving Fly "indicator" plants California croton (*Croton californicus*) and telegraph weed (*Heterotheca grandiflora*) were 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
$7/2/18^2$	13:00-13:25	25	Clear	86°	3/7
7/5/18 ¹	12:30-13:00	30	Clear	99°	4/7
7/9/18 ¹	12:25-13:15	20	Haze	100°	4/8
7/11/18 ²	12:25-13:00	35	Partly Cloudy	94°	3/6
7/16/18 ¹	13:50-14:10	20	Clear	95°	3/6
$7/19/18^2$	14:05-14:35	30	Clear	101°	3/5
$7/23/18^2$	11:15-11:45	30	Clear	95°	2/4
$7/26/18^2$	11:50-12:20	30	Clear	86°	1/3
7/30/18 ²	11:15-11:45	30	90% Clouds	94°	2/5
8/1/18 ²	11:05-11:30	25	Clear	89°	2/4
8/6/18 ²	11:45-12:15	30	Clear	98°	2/4
8/8/18 ²	11:50-12:25	35	Haze	91°	2/4
8/13/18 ²	11:30-12:00	30	Clear	87°	3/5
8/15/18 ²	11:25-11:55	30	Clear	87°	2/4
8/20/18 ²	12:55-13:15	20	Clear	91°	2/4
$8/22/18^3$	12:30-12:50	40	Clear	88°	2/4
8/27/18 ²	12:15-12:40	25	Clear	77°	4/6
8/29/18 ²	09:45-10:15	30	50% Clouds	77°	0/1
9/3/18 ³	12:50-13:05	30	Clear	84°	3/6
9/5/18 ³	12:35-12:50	30	Clear	81°	4/6
9/10/183	12:35-12:50 30		Clear	84°	2/4
9/12/18 ³	12:45-13:00	30	Clear	80°	0/0
9/17/18 ³	12:45-13:05	40	Clear	85°	2/4
9/19/18 ²	09:45-10:15	30	Clear	71°	0/1

Dale Powell
 Jun Powell
 Dale and Jun Powell
 Over a 20 second period.

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APPENDIX

SUBCONTRACTOR CONCURRENCE

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

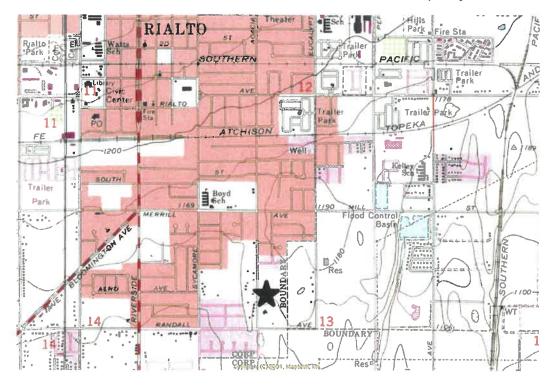
I, Jun R. Powell, having performed focused surveys for the Delhi Sands Flower-loving Fly for the Poultry Project site, Rialto, have entirely read and reviewed the final report for the project and concur with the statements and conclusions made.

Jun R. Pouell 10/2/2018

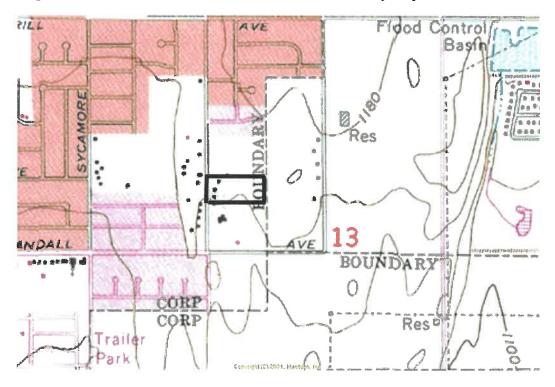
SIGNATURE DATE

APPENDIX

Map 1. General location of the Acacia and Randall Avenues Poultry Project.



Map 2. Location of the Acacia and Randall Avenues Poultry Project site.



ACACIA AND RANDALL AVENUES POULTRY PROJECT SITE

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



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



ACACIA AND RANDALL AVENUES POULTRY 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: Poultry site

Date		9:00	10:00	11:00	NOON	1:00	2:00	3:00	
1/2/18	Temp					860			7
Week	Wind					7./7			1
1	Weath					Clay			
3/5	Temp				990				7
Week	Wind				4/30				1
1	Weath				Clear				
7/9	Temp				1000				1
Week	Wind				4/8				1
2	Weath				Haz#				1
7/1	Temp				940				1
Week	Wind				2/6				
2	Weath				PC				1
716	Temp						950		7
Week	Wind						3/6		1
3	Weath						Clear		
7/19	Temp						1019		1
Week	Wind						315		1
3	Weath						clear		1
7/27	Temp			950					7
Week	Wind			2.14					1
4	Weath			elerg					1
7/26	Temp				360	-			1
Week	Wind				113				1
á	Weath				Trent.				1
7/30	Temp				940		=		1
Week	Wind				1/5				1
5	Weath				439-61				1
3/1	Temp		890						7
Week	Wind		2/4						1
S	Weath		clear						1
86	Temp				0 80				1
Week	Wind				714				1
- (Weath				Chay				1
88	Temp			90					1
Week	Wind			2/4					1
6	Weath			Hire					Suntar Fir
9/13	Temp			270					Sev Ser Line
Week	Wind			5/5					1
7	Weath			Clear					1

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

Delhi Sands Flower-loving Fly

Dale and Jun Rong Powell

Site:

Postry STE

Date		9:00	10:00	11:00	NOON	1:00	2:00	3:00
8/15/18	Temp			970				
Week	Wind			2/4				
7	Weath			Char				
920	Temp					910		
Week	Wind					2/4		
9.	Weath					Clark		
8/22	Temp					SP 6		
Week	Wind					2/4		
-8	Weath					Charle		
8/27	Temp				770			
Week	Wind				410			
15/	Weath				Clear			
6/29	Тетр		79					
Week	Wind		0/1					
9	Weath		168, Now!					
9/3	Temp				340			
Week	Wind				3/6			
O	Weath				C.car			
9/5	Temp				810			
Week	Wind				9/6			
10	Weath				Clare			
9/10	Temp				8.79 2.74			
Week	Wind				2/4			
	Weath				Clone			
913	Temp				80			
Week	Wind				06			
	Weath				C (62			
917-	Temp					350		
Week	Wind					214		
12	Weath					Clear		
9/19	Temp		710					
Week	Wind		0/1					
12	Weath		Clear					
	Temp							
Week	Wind							
	Weath							
	Temp							
Week	Wind							
	Weath							

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

Delhi Sands l						\$		ΤĖ					n Ro			
Poutry Site	12/12	115	3/9	7/11	716	7/19	+12	7/26	730	8/1	26	8/8	8/13	2/5	8/20	8/20
Coleoptera		118			VIUN		~		990							
Carabidae																
Chrysomelidae	_															
Coccinellidae			_						1							
Curculionidae																
Rhipiphoridae	1															
Scarabaeidae							J	1/			V		1	1		
Tenebrionidae																
Melartan		/														
Dermaptera		102				EUR	100000									
Diptera		10000			-											
Apioceridae									-				1			-
Asilidae	-		-	-	-				5		-	-	-	<u></u>		_
Bombyliidae	-	-	-	· v		-	_			_	-		1	V		_
Calliphoridae	-	_	-	-	_	-			-	_	-5/	-		1	- 1	
Chironomidae	-	_	-	-	-	_		-	-		-	-	-	-		
Conopidae		-	-	-	-				-	-	-	-	-	-		
Muscidae	-	17	-	-	./	-7	,	100	-	-	-	-	-	-	-	-
Mydidae	V	1/_	1	1/	/	V.	1	V	1	V	/	11/	1	1	V	~~
Sarcophagidae	-		-	-	-				-			-	-	(2)		
Stratiomyidae	-	-	-	-	-		-	-	_	_	-	-	-	_		
Syrphidae		-	-	-	-	_		-	_	_	-	-	-	-		
Tabanidae	-	-	-		-				_	_		-	-	-		
Tachinidae			-	-	-		-	-	-	_	-	-	-	-		
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Hemiptera					2.5			4,	1	3 .	18.	115				
Anthocoridae	-	1		_												
Lygaeidae		J														
Miridae			_													
Nabidae																
Pentatomidae																
Reduviidae		-														
Scutelleridae																
Homoptera	-									7,0			H1.000	no(a	inige	
Aphididae																
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Cicadellidae																
Cicadidae																
Membracidae																

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Paultry Site	7/24/19	75	7/9	7/11	7/16	7/19	7/22	7/26	N36	ર્શા	2/4	8/8	ala	8/4	8/20	8/2
Hymenoptera	-37										Mil.				02	0 101
Anthophoridae																
Apidae	1	1	1	1	1			12	1	V	~	10.0	1	1./	1	0
Braconidae							1							-		
Chrysididae					- 22									/		
Formicidae	/	1	1	1	1	10	1	V	1	37	V	1	7	1	1	111
Halicitidae			-				-					-		-		0.0
Ichneumonidae																_
Mutillidae																_
Pompilidae														_		-
Scoliidae				_				-				_	_			
Sphecidae				1		1			1	_	./	. /	_	-	177	IJ
Vespidae	12			-					1		- \/				1	00
	_															
Lepidoptera	200						-		1000							
Danaidae															V	J
Hesperiidae							1		1	JX.	1	1	1	1	V	- 0
Lycaenidae									D)				1		1	J.
Noctuidae	7										1 7					
Nymphalidae									ý.							
Papilionidae																1
Pieridae	1			/					1			1				1
Pyralidae																~
Sphingidae									_							_
Neuroptera					1000					11001						
Ascalaphidae	-	1000								- 19					-80	
Chrysopidae			_	-		_		_		-	_			_		
Hemerobiidae		-	-	-	_	_	-	_	_	-	_	_	-	_		
Myrmeleontidae																
Odonata				DOM:	gue!			eLDV.	500				IV-		2032	
Aeshnidae														-		_
Coenagrionidae											-			1	1	_
Libellulidae	1						/			V				1		/
Orthoptera																
	-	-	,	-	-,		- 1		1				1	0	1	
Acrididae	-4	V	<i>J</i>	1	2/		1/						1	V	1	
Gryllacrididae																
Gryllidae																
Mantidae																
Tettigoniidae																
OTHER						200										

Delhi Sands Flower-Joving Fly Dale and Jun Rong Powell

faultry Site	3/4/2	8/19	913	9/5	9 10	9/12	913	9/19								
Coleoptera		4500			1000						No.		160		2000	
Carabidae																
Chrysomelidae																
Coccinellidae																1
Curculionidae	_															\vdash
Rhipiphoridae		_				_				-	-	-			-	-
Scarabaeidae	-	1	1	1		-			_	-	-	-	-	-	-	-
Tenebrionidae	-	~	-	1	_		V		_	-	-		-	-	-	-
Telleorionidae	-					-	-		_	-	-			-	-	-
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Dermaptera			-			0.45										
Diptera		2.2			163					To Tr						
Apioceridae																
Asilidae																
Bombyliidae				1	1	110										
Calliphoridae																
Chironomidae																
Conopidae														_		-
Muscidae	30	V	JJ	.7.7	91	11		V		-	_				_	-
Mydidae	-	-			11/	24		1		1	-				_	-
Sarcophagidae										-	-	-				-
Stratiomyidae	-				_	_			_	-	_	-	-	-	-	-
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Syrphidae	-		-	1/		_		_	_	-		_				
Tabanidae	-															
Tachinidae	-									_						
Hemiptera				90	11.16	A			20	Jan 1	- 30	131	.500	100		
Anthocoridae																
Lygaeidae			11					V							-	
Miridae																
Nabidae																
Pentatomidae																
Reduviidae			-								-	_	-	_	_	-
Scutelleridae													_			
Seateller Rade			-						_	-	-	-				-
Homoptera	2000		00000	40000			Auren									
Aphididae			-										700	-		-
Cercopidae	_			-	-				-	-			_		_	
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Cicadellidae																
Cicadidae																
Membracidae																

Delhi Sands Flower-loving Fly

Dale and Jun Rong Powell

Poultry Site	4/12	2/29	9/3	9/5	9/10	910	9/9	9/19								
Hymenoptera	- 85			1	234		78		100					THE REAL PROPERTY.	1-37	100
Anthophoridae																
Apidae	V	7	10	1	1	11		.0								
Braconidae	1			1		12.5		1								
Chrysididae	1		-		_		-		_	-	-	-				_
Formicidae		7	11	13	-	N	-	7	_	-	-	-	-			-
Halicitidae	-	1/-	-	-	44	1	-	1 1	_	-	+-	-	-			-
Ichneumonidae	-	-	-	_	-	-	_	-	_	-	-	-	-	-	_	-
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Mutillidae	-	_	_	_	_			_		-	-	_	_			
Pompilidae	_									_	-					
Scoliidae																
Sphecidae						/		1								
Vespidae					5/											
Lepidoptera					200											
Danaidae																
Hesperiidae			11	11	1.7	/		V	_				_			-
Lycaenidae		:V	VV	1	1	-	-	V		-	-	-	-	-	-	_
Noctuidae		V	-	-	0.0	-		_ v		-	-	-	-			-
Nymphalidae	+		-		-	-	_	-	-	-	-	-	-	-	-	-
Papilionidae	-	-	-		_					-	-		-		_	_
Papilionidae	-	_	-	-	-,-	,				-	-		_			
Pieridae	_		11		1	1	V				-					
Pyralidae																
Sphingidae																
Neuroptera				1000						10,10					J. Lie	
Ascalaphidae																
Chrysopidae																
Hemerobiidae																
Myrmeleontidae																
Odonata	1 1 5 5	145		W	. 37			ingi	VI DU							12.0
Aeshnidae																
Coenagrionidae																
Libellulidae	V.	J				1		V								
Orthoptera							1 20							300		Bir
Acrididae																
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Gryllidae																
Mantidae	1												1			1
Tettigoniidae																
OTHER			ges											155		
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	1										_	-			-	