



# OAK VALLEY NORTH PROJECT

FAIRY SHRIMP WET AND DRY SEASON FINAL REPORT 2024

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# 1. Summary

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Huffman Environmental, LLC. (Huffman Environmental) were contracted to conduct United States Fish and Wildlife (USFWS) Protocol 2023 and 2024 dry and wet season, vernal pool branchiopod (herein fairy shrimp) surveys for the Oak Valley North Project (herein Project) in Riverside County, California. This project site supports 11 identified ponding features capable of supporting fairy shrimp. Wet and dry season results were positive for one species, Lindahl's fairy shrimp (*Branchinecta lindahli*). No federally listed, Endangered, or Threatened species were detected.

## 2. Introduction

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### 2.1 Project Location

The Oak Valley North Project is an approximately 115-acre site in Riverside County, California. The Project site is located within the city of Calimesa, southeast of Singleton Road. It is bordered to the northeast by Beckwith Avenue and to the southwest by Calimesa Avenue and the Interstate 10 freeway. The Project site falls within the El Casco, United States Geological Survey (USGS) 7.5-minute series quadrangle map (Figures 1 & 2).

### 2.2 Historical Occurrences

No recorded sensitive fairy shrimp are within the Project boundaries per the California Natural Native Database (CNDDDB) and United States Fish and Wildlife Services (USFWS) National GIS Database. The nearest recorded observation identified the vernal pool fairy shrimp (*Streptocephalus woottoni*) occurring 16 miles west of the project site in Moreno Valley (CDFG 2024).

### 2.3 Natural History

USFWS currently has listed six branchiopod species as Endangered or Threatened: Conservancy fairy shrimp (*Branchinecta conservatio*), longhorn fairy shrimp (*Branchinecta longiantenna*), vernal pool tadpole shrimp (*Lepidurus packardi*), vernal pool fairy shrimp (*Branchinecta lynchi*), Riverside fairy shrimp (*Streptocephalus woottoni*), and the San Diego fairy shrimp (*Branchinecta sandiegonensis*). These species collectively are called the "Listed Large Brachiopods." These species have all been listed by USFWS primarily due to the acceleration of human expansion and urban construction in the vernal pool habitat. Additionally, vernal pool hydrology has been impacted through water flow alteration by various infrastructure developments, such as roads, trails, canals, and so forth (USFWS Oregon 2020).

Vernal pools are formed from restrictive substrate layers under the ground surface, reducing water percolation. Once these layers within the subsoil become inundated, the basin will begin to fill. This allows ponding, creating a habitat for fairy shrimp (CDFW 1998). Specific plant species have become endemic to these features and can be used to aid in the identification of vernal pools.

Habitat for fairy shrimp can naturally form or be created by other artificial, topographic features mimicking the aquatic habitat of the natural vernal pools (Sutter, 1998). These vernal pool mimics may include anthropogenic features such as tire ruts, agricultural and construction ditches, cement culverts, etc.

All of the brachiopods, as mentioned above, have limited life spans of no longer than 150 days and can be completed in as little as 20 days with a relatively quick reproduction rate between 20 to 60 days (USFWS 1994). These species will deposit their embryos into the substrate, enveloped by a protective shell known as cysts. These cysts protect the embryos during the dry seasons and are exposed to various elements. Cysts have been known to be viable for up to 15 years (Eriksen & Belk, 1999). Given the appropriate conditions, these cysts will break dormancy after environmental stimuli, such as precipitation, and restart the life cycle.

### **3. Methods**

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#### **3.1 Habitat Assessment**

Huffman Environmental conducted an assessment of the Project site in October 2023 to determine habitat suitability for supporting fairy shrimp. The Project site consists primarily of active and fallow agriculture fields with non-native grassland, a small patch of remnant disturbed coastal sage scrub, and scattered ornamental trees. The site is bordered by dirt roads, low-lying areas, and drainage ditches with bare soil or non-native vegetation. Ponding features on-site consists of tire ruts and tracks, low-lying areas within dirt roads, and drainage ditches. Ten features within the Project site showed evidence of ponding water suitable to support fairy shrimp.

#### **3.2 Wet Season Survey Methodology**

Survey methodology was conducted in accordance with the USFWS Survey Guidelines for Listed Large Branchiopods, revised November 13, 2017, for wet season vernal pool branchiopod surveys. Per these Guidelines, the wet season generally occurs in California between October and June. Surveys were conducted from January 11, 2024 to May 11, 2024. The results of each visit can be observed in Table 1. 24-hour ponding checks were conducted when it was determined the project site had received adequate rainfall to sustain 3 cm of ponding water or more and warrant protocol visits. Beginning on January 11, 2024, each feature was sampled at seven-day intervals until all features were dry by May 4, 2024 marking the end of the wet season for this Project. Huffman

Environmental biologist, Garrett Huffman (TE-20186A-3.2), conducted all wet season vernal pool sampling on the project site. Data collected for the features included average and maximum water depth, temperature, length and width of feature extent, degree type of disturbance (if applicable), presence of fairy shrimp, and observations of any co-occurring benthic macroinvertebrates. The features was sampled using a standard 50-micron hand-held net to sweep through the water and examine invertebrates. The results of each visit can be observed in Table 1.

**Table 1: Wet Season Results**

Date	OV-01	OV-02	OV-03	OV-04	OV-05	OV-06	OV-07	OV-08	OV-09	OV-10	OV-11
1/11	Wet <sup>1</sup>	Dry <sup>2</sup>	FS <sup>3</sup>	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Wet
1/18	Wet	Dry	FS	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Wet
1/27	Wet	Dry	FS	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Wet
2/3	Wet	Dry	Wet	Dry	Dry	Dry	Dry	Dry	Dry	Wet	Wet
2/11	Wet	Dry	Wet	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Wet
2/18	Wet	Dry	Wet	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Wet
2/25	Wet	Dry	Wet	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Wet
3/3	Wet	Wet	Wet	Wet	Dry	Dry	Dry	Dry	Dry	Dry	Wet
3/10	Wet	Dry	FS	Dry	Dry	Dry	Dry	Dry	Dry	Wet	Wet
3/17	Wet	Dry	FS	Dry	Dry	Dry	Dry	Dry	Dry	Wet	Wet
3/24	Wet	Dry	FS	Dry	Dry	Dry	Dry	Dry	Dry	Wet	Wet
3/31	Wet	Dry	FS	Dry	Dry	Dry	Dry	Dry	Dry	Wet	Dry
4/7	Wet	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
4/14	Wet	Wet	Wet	Dry	Dry	Dry	Dry	Dry	Dry	Wet	Wet
4/21	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry

<sup>1</sup> Feature ponded but no fairy shrimp present.

<sup>2</sup> Feature is dry.

<sup>3</sup> Feature is ponded and positive for fairy shrimp (*Branchinecta lindahli*).

### 3.3 Dry Season Survey Methodology

Dry-season soil samples were collected from the Project site on October 13, 2023, in accordance with the the USFWS Survey Guidelines for Listed Large Branchiopods (USFWS 2017). The USFWS Survey Guidelines provide a formula recommending the

number of samples collected per feature based on the approximate size of the feature in square meters. Six ponding features were estimated to be between 2.5 and 24 square meters (0.005 acres), requiring a minimum of 10 collected soil samples for each. Four features were estimated to be between 25 and 235 square meters (0.05 acres), requiring a minimum of 25 collected soil samples. Regardless of feature size, all samples were collected in volumes of 50 to 100 milliliters each. Each sample was collected from the lowest topographic areas within the pool to maximize the potential detection of cysts.

Dry sample collections were conducted by biologist Garrett Huffman (TE-20186A-3.2) and trainee Blanca Martinez. Biologist Chuck Black (TE-835549-8) conducted dry sample processing and cyst hatching. All data compiled during dry sample processing can be reviewed in Appendix B.

### **3.4 Soil Processing for Cyst Presence**

Project samples were hydrated for approximately 1-2 hours in tap water and then washed through a set of sieves. The material was passed through a Number 45 (.0139") USA Standard Testing Sieve, A.S.T.M.E.-11 specification, and caught on a Number 70 (.0083") Sieve. The filtered material was then rinsed into a container with approximately 50 millimeters of a saturated brine solution to float organic material, including fairy shrimp cysts. The material floating on the brine was decanted onto a paper filter on a filter funnel, and water was removed through the filter paper by vacuum suction. A 6.3-570x power Olympus SZX9 Zoom Stereo Microscope was used to examine the remaining material. Distinctive fairy shrimp cysts, if present, were individually counted (if less than approximately 50) or estimated (for larger numbers) by examining  $\frac{1}{4}$  or  $\frac{1}{2}$  subsections of the filter and multiplying the subset by the appropriate factor. The presence and number of ostracod shells and cladoceran ephippia were also noted in samples.

### **3.5 Cyst Culturing**

Individual Project samples were combined by pool number and hydrated in approximately 500 ml of Arrowhead Mountain Spring water. Plastic culture tubs were placed in a shady location in a San Diego outdoor location (night low temperatures in the low to mid-60s, daily highs in the low 70s to high 80s). Two days after hydration, cultures were fed with several ml of a yeast culture produced by dissolving a gram of table sugar and a gram of instant dry yeast in 50 ml 95 F degree filtered water. Water was added daily to tubs to replace water lost to evaporation. Mature shrimp were removed periodically from each culture as they became large enough to identify and examined under an Olympus Zoom dissecting microscope.

## **4. Results**

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Dry samples were collected from 10 features and underwent a process to filter out fairy shrimp cysts. Two of the features (OV-03 and OV-05) were positive for *Branchinecta*

fairy shrimp cysts (Figure 3). These cysts were introduced to a simulated environment by submerging in water to hatch and then raised to maturity for identification. All fairy shrimp individuals that reached maturity were identified as Lindahl's fairy shrimp.

Wet samples were conducted on 11 features from February to April when ponding occurred. Mature fairy shrimp were identified in feature OV-03 and identified as Lindahl's fairy shrimp. Collected specimens were vouchered and scheduled to be delivered at the nearest approved repository. OV-05, positive for fairy shrimp during dry season sampling, did not receive enough precipitation to sustain fairy shrimp life cycles. All other features were negative for the presence of fairy shrimp.

## **5. Conclusion**

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The fairy shrimp wet and dry season surveys were conducted in accordance with the USFWS protocol.

No federally listed, Endangered, or Threatened fairy shrimp species were detected during wet and dry season efforts. We feel that these efforts were suitable for accurately detecting all species occurrence on-site. These results fulfill the USFWS criteria to be considered a complete survey.

## 6. Certification

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All biologists working under Huffman Environmental for the 2023 and 2024 dry and wet season fairy shrimp surveys at the Oak Valley North Project were permitted to survey this species under Section 10(a)(1)(A) of the ESA.

I certify that the information in this survey report and attached exhibits fully and accurately represents my work.

Please feel free to contact me at (623) 238-1545 or [garrett@huffmanenvironmental.com](mailto:garrett@huffmanenvironmental.com) if you have any questions regarding the contents of this report.

Cordially,



Garrett Huffman  
Principal Biologist  
Huffman Environmental, LLC  
(623) 238-1545  
[garrett@huffmanenvironmental.com](mailto:garrett@huffmanenvironmental.com)

## 7. References

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California Department of Fish and Game (CDFG). California Natural Diversity DataBase (CNDDDB). 2023a. RareFind Database Program, Commercial Version July 14.

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Oregon Fish and Wildlife. *Vernal Pool Fairy Shrimp*. December 2019.  
<https://www.fws.gov/oregonfwo/articles.cfm?id=149489448>

U.S. Fish and Wildlife Service. 1994. *Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the Conservancy Fairy Shrimp, Longhorn Fairy Shrimp, and the Vernal Pool Tadpole Shrimp; and Threatened Status for the Vernal Pool Fairy Shrimp*. Federal Register 59 (180): 48136-48152.



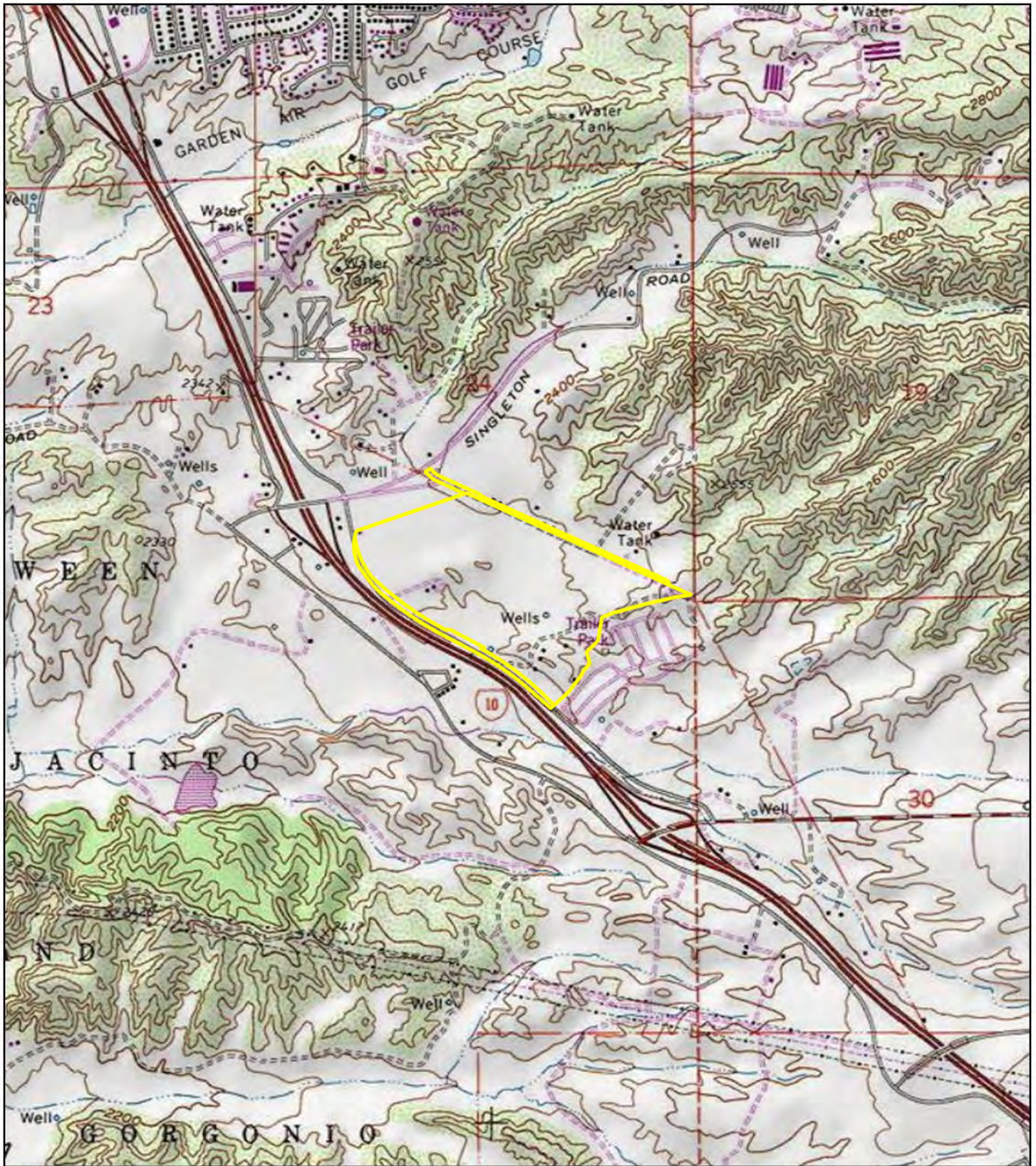
# Figure 1: Oak Valley North Project

Fairy Shrimp Wet and Dry Season Surveys

2023

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere



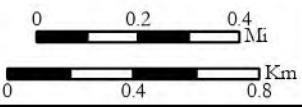


## Figure 2: USGS Map Oak Valley North Project

Fairy Shrimp Wet and Dry Season  
Surveys

2023

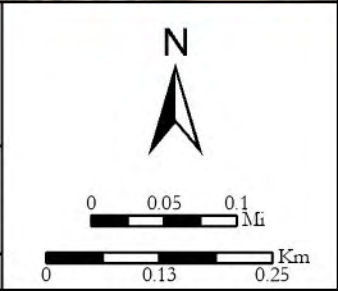
Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere





**Figure 3: Ponding Features  
Oak Valley North Project**

<p>Fairy Shrimp Dry Season Surveys</p>	<p>2023</p>
<p>Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere</p>	



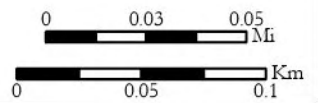


## Figure 4: Wet & Dry Season Results Oak Valley North Project

Fairy Shrimp Wet and Dry Season  
Surveys

2024

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere

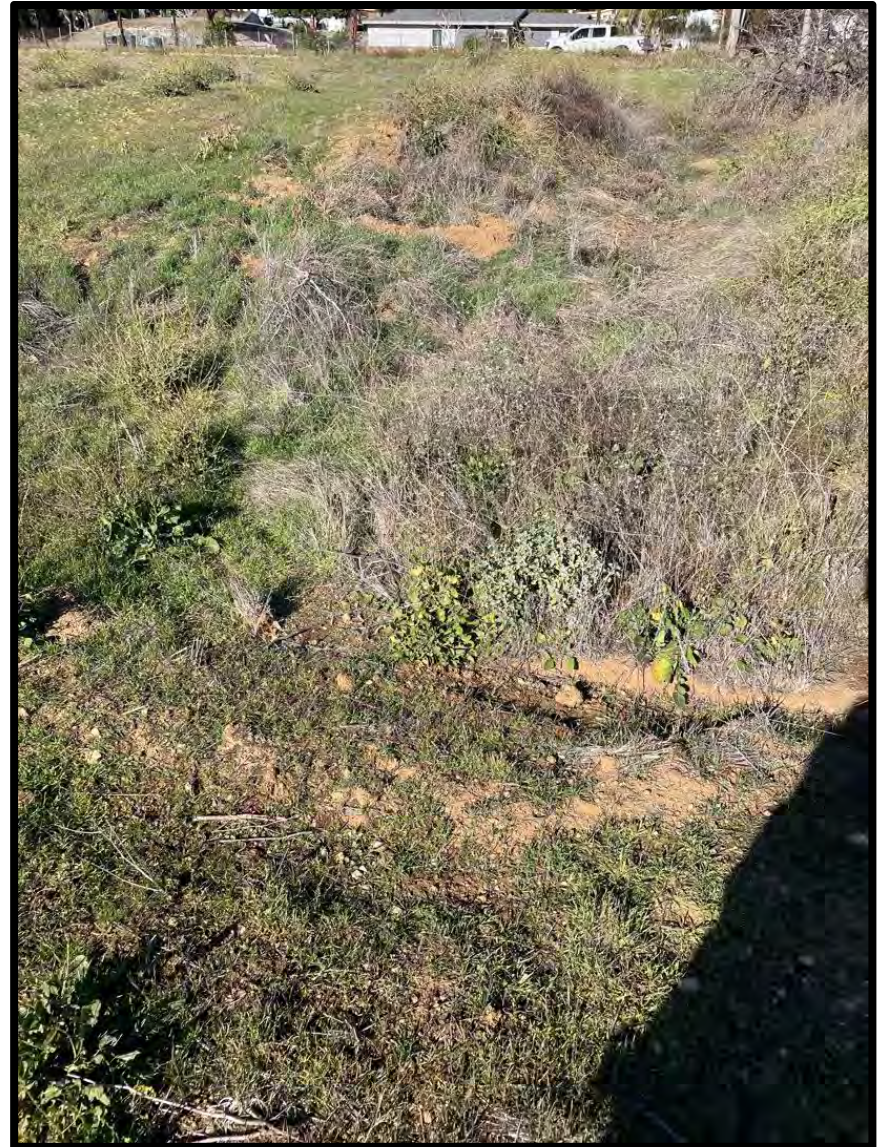


**Appendix A**  
**Site Photos**

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OV-07: 25 Samples Collected. Negative for Fairy Shrimp



OV-05: 25 Samples Collected. Positive for versatile fairy shrimp (*Branchinecta lindahli*)



OV-02: 10 samples collected and negative for fairy shrimp



OV-01: 25 samples collected and negative for fairy shrimp



Photo 1: OV-07: 25 Samples Collected. Negative for Fairy Shrimp.



Photo 2: Fairy Shrimp OV-05: 25 Samples Collected. Positive for versatile fairy shrimp (*Branchinecta lindahli*).



Photo 3: OV-02: 10 samples collected and negative for fairy shrimp.



Photo 4: OV-01: 25 samples collected and negative for fairy shrimp.

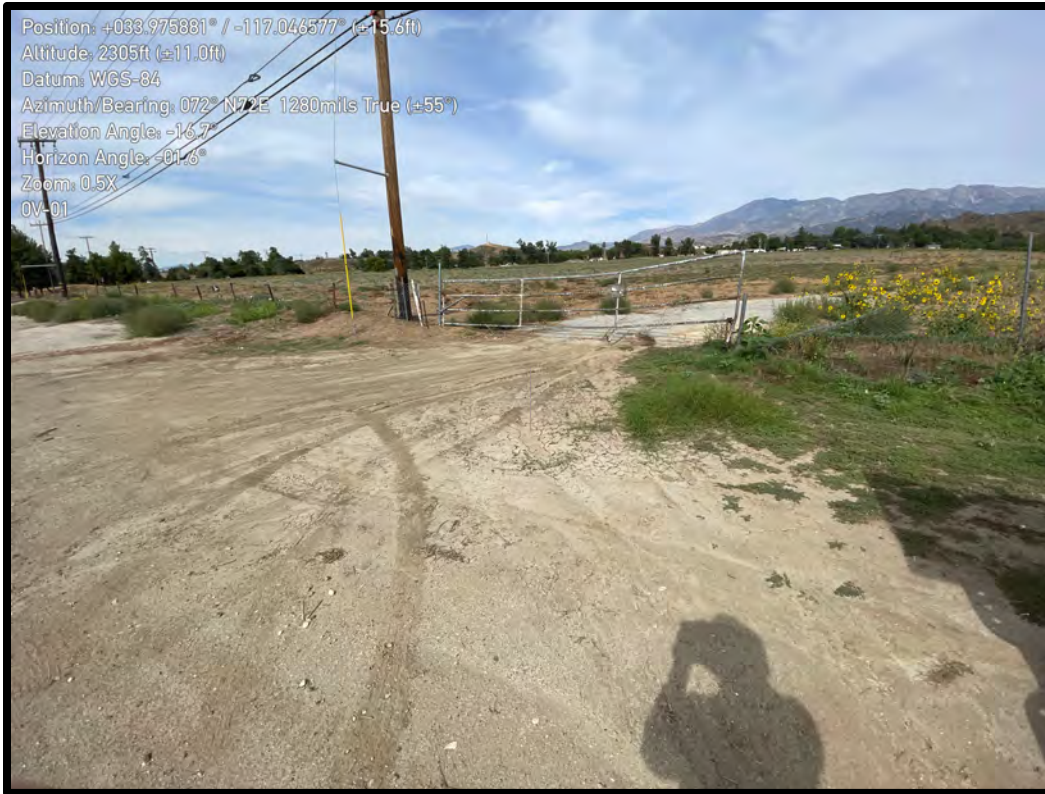


Photo 5: OV-01: Dry sampling location.



Photo 6: OV-03; 25 samples collected positive for versatile fairy shrimp (*Branchinecta lindahli*).



Photo 7: Aerial photo of OV-01 ponding, negative for fairy shrimp.



Photo 8: Aerial photo of OV-03, positive for Lindahl's fairy shrimp.

**Appendix B**  
**Dry Season Sampling Results**

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# Processing of Dry Samples from Basins at the Oak Valley North Project Site and Culturing of Fairy Shrimp Cysts for Species Identification.

6 October, 2023

Chuck Black  
Ecological Restoration Service  
San Diego, CA 92103  
(619) 944-1964

10(a)(1)(A) permit  
ES835549-8  
Good through 2025-07-31'

## Introduction

Ecological Restoration Service was contracted in September 2023 by Garrett Huffman of Huffman Biological Julian, CA. for processing of dry samples for the determination of the presence of fairy shrimp cysts, and for culturing of *Branchinecta* cysts for identification to the species level of any cysts found for dry samples from the Oak Valley North project site.

## Soil Processing for Cyst Presence

### Methods

Samples collected by Garrett Huffman (permit number TE-20186A-3.2) were processed by Charles Black of Ecological Restoration Service, who is authorized by the U.S. fish and Wildlife Service to process dry samples for the presence of fairy shrimp cysts and to culture cysts to identify to species level as special conditions of his 10(a)(1)(A) permit. Samples were hydrated for approximately 1-2 hours in tap water, then washed through a set of sieves. Material passing through a Number 45 (.0139") USA Standard Testing Sieve, A.S.T.M.E.-11 specification and caught on a Number 70 (.0083") Sieve was rinsed into a container with approximately 50 ml of a saturated brine solution to float organic material, including fairy shrimp cysts. The material floating on the brine was decanted onto a paper filter on a filter funnel, and water was removed through the filter paper by vacuum suction. The material left on the paper was examined under a 6.3-570x power Olympus SZX9 Zoom Stereo Microscope. Distinctive fairy shrimp cysts, if present, were individually counted (if less than approximately 50) or estimated (for larger numbers) by examining  $\frac{1}{4}$  or  $\frac{1}{2}$  subsections of the filter and multiplying the subset by the appropriate factor. The presences and approximate numbers of ostracod shells and cladoceran ephippia were also noted in samples.

### Results

A single *Branchinecta* cyst was found in one sample from Basin 4, and 2 *Branchinecta* cysts were found in a single sample from Basin 5 (Table 1). No other aquatic structures were found.

**Table 1 – Numbers of cysts and shrimp identified from individual basins.**

Feature	Numbers of 50 ml Samples	Cysts/sample	Cysts/100 ml	<i>B. lindahli</i> identified (m:f)
OV-01	25	*		
OV-02	10			
OV-03	10			
OV-04	10	1	0.20	
OV-05	25	2	0.16	1:0
OV-06	25			
OV-07	25			
OV-08	10			
OV-09	10			
OV-10	10			

\* no number indicates zero cysts found or shrimp identified

## **Cyst Culturing for Species Identification**

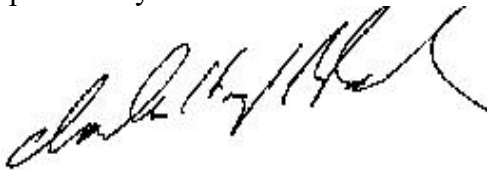
### **Methods**

Cysts from the samples were hydrated in approximately 500 ml of Arrowhead Mountain Spring Water in a food grade plastic containers and placed in an environmental chamber at 40 degrees F. for three days. They were then moved to a semi-shaded location. During culturing at this site daytime highs were in the mid to upper 70s, lows in the mid to upper 50s F. When hatched nauplii were observed in the cultures, a 2-3 ml portion of a solution made by dissolving 4-5 grams of instant dried yeast in 40-50 ml of warm water was added to the culture and stirred in gently with a spoon. Fairy shrimp were removed and identified as they became mature.

### **Results**

A single fairy shrimp hatched within one day after cultures were removed from the chamber from Basin 5 and was reared to identifiable size. It was a male *Branchinecta lindahli* (Table 1).

I certify that the information in this survey report and attached exhibits fully and accurately represent my work.





## Survey Data

Survey Type	Fairy Shrimp Dry Season
Project	Oak Valley North
Date	October 13, 2023
Round	1
Surveyor	Garrett Huffman
Trainee	Blanca Martinez

## Environmental Data

Start of Survey Data

Time	11:00
Temperature	72
Wind	2-5
Cloud	5

End of Survey Data

Time	13:00
Temperature	78
Wind	2-5
Cloud	0

## Pond Feature (10 Items)

### Pond Feature - 1. OV-01

Pool or Area ID	OV-01
Photos	
Status	Dry
Feature Condition	Disturbed (tire tracks, etc)
Other Species	
Notes	25 samples

### Pond Feature - 2. OV-02

Pool or Area ID	OV-02
Photos	

Status	Dry
Feature Condition	Disturbed (tire tracks, etc)
Other Species	
Notes	10 samples

### Pond Feature - 3. OV-03

Pool or Area ID	OV-03
Photos	
Status	Dry
Feature Condition	Disturbed (tire tracks, etc)
Other Species	
Notes	10 samples

### Pond Feature - 4. OV-04

Pool or Area ID	OV-04
Photos	
Status	Dry
Feature Condition	
Other Species	
Notes	10 samples

### Pond Feature - 5. OV-05

Pool or Area ID	OV-05
Photos	
Status	Dry
Feature Condition	
Other Species	
Notes	25 samples

### Pond Feature - 6. OV-06

Pool or Area ID	OV-06
Photos	

Status	Dry
Feature Condition	
Other Species	
Notes	25 samples

### Pond Feature - 7. OV-07

Pool or Area ID	OV-07
Photos	
Status	Dry
Feature Condition	
Other Species	
Notes	25 samples

### Pond Feature - 8. OV-09

Pool or Area ID	OV-09
Photos	
Status	Dry
Feature Condition	
Other Species	
Notes	

### Pond Feature - 9. OV-08

Pool or Area ID	OV-08
Photos	
Status	Dry
Feature Condition	Disturbed (tire tracks, etc)
Other Species	
Notes	10 samples

### Pond Feature - 10. OV-10

Pool or Area ID	OV-10
Photos	

Status	
Feature Condition	
Other Species	
Notes	10 samples

## General Notes

Notes	
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## Survey Data

Survey Type	Fairy Shrimp Wet Season
Project	Oak Valley North
Date	January 11, 2024
Round	1
Surveyor	Garrett Huffman
Trainee	Blanca Martinez

## Environmental Data

Start of Survey Data

Time	07:30
Temperature	42
Wind	3-8
Cloud	0

End of Survey Data

Time	10:30
Temperature	52
Wind	0
Cloud	0

## Pond Feature (11 Items)

### Pond Feature - 1. OV-01

Pool or Area ID | OV-01

Photos



Status	Wet
Air Temp (Celsius)	11.1
Water Temp (Celsius)	15.5
Average Depth (cm)	5
Max Depth (cm)	10
Pool Length (m)	6
Pool Width (m)	9
Feature Condition	Disturbed (tire tracks, etc)
Fairy Shrimp Species	None
Other Species	Midges
Notes	

**Pond Feature - 2. OV-02**

Pool or Area ID	OV-02
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Photos



Status	Dry
Feature Condition	Disturbed (tire tracks, etc)
Other Species	
Notes	

### Pond Feature - 3. OV-03

Pool or Area ID	OV-03
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Photos



Status	Wet
Air Temp (Celsius)	11.4
Water Temp (Celsius)	15.5
Average Depth (cm)	4
Max Depth (cm)	6
Pool Length (m)	7
Pool Width (m)	4
Feature Condition	Disturbed (tire tracks, etc)
Fairy Shrimp Species	None, Immature
Other Species	Springtails
Notes	

**Pond Feature - 4. OV-04**

Pool or Area ID	OV-04
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Photos



<b>Status</b>	Dry
<b>Feature Condition</b>	Disturbed (tire tracks, etc)
<b>Other Species</b>	
<b>Notes</b>	Damp soil

### Pond Feature - 5. OV-11

<b>Pool or Area ID</b>	OV-11
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**Photos**



Status	Wet
Air Temp (Celsius)	11.4
Water Temp (Celsius)	16.7
Average Depth (cm)	4
Max Depth (cm)	6
Pool Length (m)	5
Pool Width (m)	5
Feature Condition	Disturbed (tire tracks, etc)
Fairy Shrimp Species	None
Other Species	Springtails
Notes	

**Pond Feature - 6. OV-10**

Pool or Area ID	OV-10
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Photos



Status	Dry
Feature Condition	Disturbed (tire tracks, etc)
Other Species	
Notes	

**Pond Feature - 7. OV-06**

Pool or Area ID	OV-06
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Photos



Status	Dry
Feature Condition	Disturbed (tire tracks, etc)
Other Species	
Notes	

**Pond Feature - 8. OV-05**

Pool or Area ID	OV-05
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Photos



Status	Dry
Feature Condition	Disturbed (tire tracks, etc)
Other Species	
Notes	

**Pond Feature - 9. OV-08**

Pool or Area ID	OV-08
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Photos



Status	Dry
Feature Condition	Disturbed (tire tracks, etc)
Other Species	
Notes	

**Pond Feature - 10. OV-07**

Pool or Area ID	OV-07
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Photos



Status	Dry
Feature Condition	Disturbed (tire tracks, etc)
Other Species	
Notes	

**Pond Feature - 11. OV-09**

Pool or Area ID	OV-09
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Photos



**Status** | Dry

**Feature Condition** | Disturbed (tire tracks, etc)

**Other Species** |

**Notes** |

**General Notes**

**Notes** |

## Survey Data

Survey Type	Fairy Shrimp Wet Season
Project	Oak Valley North
Date	January 18, 2024
Round	2
Surveyor	Garrett Huffman
Trainee	Blanca Martinez

## Environmental Data

Start of Survey Data

Time	15:00
Temperature	70
Wind	2-6
Cloud	0

End of Survey Data

Time	17:07
Temperature	68
Wind	0
Cloud	0

## Pond Feature (11 Items)

### Pond Feature - 1. OV-01

Pool or Area ID	OV-01
Photos	
Status	Wet
Air Temp (Celsius)	12.5
Water Temp (Celsius)	16.3
Average Depth (cm)	4
Max Depth (cm)	7
Pool Length (m)	4
Pool Width (m)	7
Feature Condition	Disturbed (tire tracks, etc)
Fairy Shrimp Species	None

Other Species	Midges
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Notes	
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### Pond Feature - 2. OV-02

Pool or Area ID	OV-02
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Photos	
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Status	Dry
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Feature Condition	Disturbed (tire tracks, etc)
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Other Species	
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Notes	
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### Pond Feature - 3. OV-03

Pool or Area ID	OV-03
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Photos	
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Status	Wet
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Air Temp (Celsius)	12.5
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Water Temp (Celsius)	16.3
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Average Depth (cm)	3
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Max Depth (cm)	4
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Pool Length (m)	5
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Pool Width (m)	3
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Feature Condition	Disturbed (tire tracks, etc)
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Fairy Shrimp Species	None, Immature
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Other Species	Springtails
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Notes	
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### Pond Feature - 4. OV-04

Pool or Area ID	OV-04
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Photos	
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Status	Dry
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Feature Condition	Disturbed (tire tracks, etc)
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Other Species	
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Notes	Damp soil
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## Pond Feature - 5. OV-11

Pool or Area ID | OV-11

Photos

Status | Wet

Air Temp (Celsius) | 12.5

Water Temp (Celsius) | 17.3

Average Depth (cm) | 2

Max Depth (cm) | 4

Pool Length (m) | 4

Pool Width (m) | 3

Feature Condition | Disturbed (tire tracks, etc)

Fairy Shrimp Species | None

Other Species | Springtails

Notes

## Pond Feature - 6. OV-10

Pool or Area ID | OV-10

Photos

Status | Dry

Feature Condition | Disturbed (tire tracks, etc)

Other Species

Notes

## Pond Feature - 7. OV-06

Pool or Area ID | OV-06

Photos

Status | Dry

Feature Condition | Disturbed (tire tracks, etc)

Other Species

Notes

## Pond Feature - 8. OV-05

Pool or Area ID | OV-05

Photos

Status | Dry

Feature Condition | Disturbed (tire tracks, etc)

Other Species |

Notes |

### Pond Feature - 9. OV-08

Pool or Area ID | OV-08

Photos

Status | Dry

Feature Condition | Disturbed (tire tracks, etc)

Other Species |

Notes |

### Pond Feature - 10. OV-07

Pool or Area ID | OV-07

Photos

Status | Dry

Feature Condition | Disturbed (tire tracks, etc)

Other Species |

Notes |

### Pond Feature - 11. OV-09

Pool or Area ID | OV-09

Photos

Status | Dry

Feature Condition | Disturbed (tire tracks, etc)

Other Species |

Notes |

### General Notes



## Survey Data

Survey Type	Fairy Shrimp Wet Season
Project	Oak Valley North
Date	January 27, 2024
Round	3
Surveyor	Garrett Huffman
Trainee	

## Environmental Data

Start of Survey Data

Time	12:04
Temperature	65
Wind	8-15
Cloud	15

End of Survey Data

Time	14:28
Temperature	68
Wind	7-13
Cloud	20

## Pond Feature (11 Items)

### Pond Feature - 1. OV-01

Pool or Area ID | OV-01

Photos



Status	Wet
Air Temp (Celsius)	14.3
Water Temp (Celsius)	15.5
Average Depth (cm)	8
Max Depth (cm)	12
Pool Length (m)	7
Pool Width (m)	3
Feature Condition	Disturbed (tire tracks, etc)
Fairy Shrimp Species	None
Other Species	Mosquito Larvae (Culicidae), Midges, Springtails
Notes	

**Pond Feature - 2. OV-03**

Pool or Area ID	OV-03
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Photos



Status	Wet
Air Temp (Celsius)	13.5
Water Temp (Celsius)	14.5
Average Depth (cm)	3
Max Depth (cm)	4
Pool Length (m)	1
Pool Width (m)	0.5
Feature Condition	Trash, Disturbed (tire tracks, etc)
Fairy Shrimp Species	Immature Fairy Shrimp
Other Species	Midges
Notes	

**Pond Feature - 3. OV-02**

Pool or Area ID	OV-02
Photos	
Status	Dry
Feature Condition	
Other Species	

Notes

### Pond Feature - 4. OV-04

Pool or Area ID | OV-04

Photos

Status | Dry

Feature Condition |

Other Species |

Notes

### Pond Feature - 5. OV-05

Pool or Area ID | OV-05

Photos

Status | Dry

Feature Condition |

Other Species |

Notes

### Pond Feature - 6. OV-06

Pool or Area ID | OV-06

Photos

Status | Dry

Feature Condition |

Other Species |

Notes

### Pond Feature - 7. PV-08

Pool or Area ID | PV-08

Photos

Status | Dry

Feature Condition |

Other Species |

Notes

### Pond Feature - 8. OV-07

Pool or Area ID | OV-07

Photos

Status | Dry

Feature Condition |

Other Species |

Notes

### Pond Feature - 9. OV-09

Pool or Area ID | OV-09

Photos

Status | Dry

Feature Condition |

Other Species |

Notes

### Pond Feature - 10. OV-10

Pool or Area ID | OV-10

Photos

Status | Dry

Feature Condition |

Other Species |

Notes

### Pond Feature - 11. OV-11

Pool or Area ID | OV-11

Photos

Status | Dry

Feature Condition |

Other Species |

Notes

## General Notes

Notes

## Survey Data

Survey Type	Fairy Shrimp Wet Season
Project	Oak Valley North
Date	February 3, 2024
Round	4
Surveyor	Garrett Huffman
Trainee	

## Environmental Data

Start of Survey Data

Time	12:04
Temperature	58
Wind	3-6
Cloud	85

End of Survey Data

Time	14:28
Temperature	62
Wind	3-6
Cloud	85

## Pond Feature (11 Items)

### Pond Feature - 1. OV-01

Pool or Area ID | OV-01

Photos



Status	Wet
Air Temp (Celsius)	14.3
Water Temp (Celsius)	14.1
Average Depth (cm)	10
Max Depth (cm)	15
Pool Length (m)	9
Pool Width (m)	4
Feature Condition	Disturbed (tire tracks, etc)
Fairy Shrimp Species	None
Other Species	Mosquito Larvae (Culicidae), Midges, Springtails
Notes	

### Pond Feature - 2. OV-03

Pool or Area ID	OV-03
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Photos



Status	Wet
Air Temp (Celsius)	13.6
Water Temp (Celsius)	13.9
Average Depth (cm)	4
Max Depth (cm)	6
Pool Length (m)	5
Pool Width (m)	4
Feature Condition	Trash, Disturbed (tire tracks, etc)
Fairy Shrimp Species	None
Other Species	
Notes	FS present last week as immature and this week is negative for any FS specimens. Potential predation?

**Pond Feature - 3. OV-02**

Pool or Area ID	OV-02
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Photos



Status	Dry
Feature Condition	
Other Species	
Notes	

**Pond Feature - 4. OV-04**

Pool or Area ID	OV-04
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Photos



Status | Dry

Feature Condition |

Other Species |

Notes |

**Pond Feature - 5. OV-05**

Pool or Area ID | OV-05

Photos



Status	Dry
Feature Condition	
Other Species	
Notes	

**Pond Feature - 6. OV-06**

Pool or Area ID	OV-06
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Photos

Status	Dry
Feature Condition	
Other Species	
Notes	

**Pond Feature - 7. PV-08**

Pool or Area ID	PV-08
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Photos

Status	Dry
Feature Condition	
Other Species	
Notes	

### Pond Feature - 8. OV-07

Pool or Area ID	OV-07
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#### Photos

Status	Dry
Feature Condition	
Other Species	
Notes	

### Pond Feature - 9. OV-09

Pool or Area ID	OV-09
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#### Photos



Status	Dry
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<b>Feature Condition</b>	
<b>Other Species</b>	
<b>Notes</b>	

## Pond Feature - 10. OV-10

<b>Pool or Area ID</b>	OV-10
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### Photos



<b>Status</b>	Wet
<b>Air Temp (Celsius)</b>	14.8
<b>Water Temp (Celsius)</b>	15.2
<b>Average Depth (cm)</b>	3
<b>Max Depth (cm)</b>	4
<b>Pool Length (m)</b>	7
<b>Pool Width (m)</b>	1
<b>Feature Condition</b>	Disturbed (tire tracks, etc)
<b>Fairy Shrimp Species</b>	None
<b>Other Species</b>	
<b>Notes</b>	

## Pond Feature - 11. OV-11

Pool or Area ID

OV-11

### Photos



Status | Wet

Air Temp (Celsius) | 13.8

Water Temp (Celsius) | 14.5

Average Depth (cm) | 3

Max Depth (cm) | 5

Pool Length (m) | 5

Pool Width (m) | 5

Feature Condition | Asphalt

Fairy Shrimp Species | None

Other Species |

Notes |

## General Notes

Notes |

## Survey Data

Survey Type	Fairy Shrimp Wet Season
Project	Oak Valley North
Date	February 11, 2024
Round	5
Surveyor	Garrett Huffman
Trainee	

## Environmental Data

Start of Survey Data

Time	11:04
Temperature	55
Wind	1-2
Cloud	0

End of Survey Data

Time	13:07
Temperature	60
Wind	1-3
Cloud	0

## Pond Feature (11 Items)

### Pond Feature - 1. OV-01

Pool or Area ID | OV-01

Photos

Status	Wet
Air Temp (Celsius)	13.5
Water Temp (Celsius)	14.5
Average Depth (cm)	8
Max Depth (cm)	13
Pool Length (m)	8
Pool Width (m)	4
Feature Condition	Disturbed (tire tracks, etc)
Fairy Shrimp Species	None

Other Species | Mosquito Larvae (Culicidae), Midges, Springtails

Notes |

### Pond Feature - 2. OV-03

Pool or Area ID | OV-03

Photos |

Status | Wet

Air Temp (Celsius) | 12.5

Water Temp (Celsius) | 14.3

Average Depth (cm) | 3

Max Depth (cm) | 4

Pool Length (m) | 3

Pool Width (m) | 3

Feature Condition | Trash, Disturbed (tire tracks, etc)

Fairy Shrimp Species | None

Other Species |

Notes |

### Pond Feature - 3. OV-02

Pool or Area ID | OV-02

Photos |

Status | Dry

Feature Condition |

Other Species |

Notes |

### Pond Feature - 4. OV-04

Pool or Area ID | OV-04

Photos |

Status | Dry

Feature Condition |

Other Species |

Notes |

### Pond Feature - 5. OV-05

Pool or Area ID | OV-05

Photos

Status | Dry

Feature Condition |

Other Species |

Notes |

### Pond Feature - 6. OV-06

Pool or Area ID | OV-06

Photos

Status | Dry

Feature Condition |

Other Species |

Notes |

### Pond Feature - 7. PV-08

Pool or Area ID | PV-08

Photos

Status | Dry

Feature Condition | Graded and no longer present

Other Species |

Notes | Road has been graded since last week's visit and feature has been covered. Removed from future sampling visits.

### Pond Feature - 8. OV-07

Pool or Area ID | OV-07

Photos

Status | Dry

Feature Condition |

Other Species |

Notes |

## Pond Feature - 9. OV-09

Pool or Area ID | OV-09

Photos

Status | Dry

Feature Condition

Other Species

Notes

## Pond Feature - 10. OV-10

Pool or Area ID | OV-10

Photos

Status | Dry

Feature Condition | Disturbed (tire tracks, etc)

Other Species

Notes | Road has been graded and feature covered. Discontinue visiting for future sampling trips.

## Pond Feature - 11. OV-11

Pool or Area ID | OV-11

Photos

Status | Wet

Air Temp (Celsius) | 14.5

Water Temp (Celsius) | 13.2

Average Depth (cm) | 2

Max Depth (cm) | 4

Pool Length (m) | 3

Pool Width (m) | 2

Feature Condition | Asphalt

Fairy Shrimp Species | None

Other Species

Notes

## General Notes



## Survey Data

Survey Type	Fairy Shrimp Wet Season
Project	Oak Valley North
Date	February 18, 2024
Round	6
Surveyor	Garrett Huffman
Trainee	

## Environmental Data

Start of Survey Data

Time	11:04
Temperature	55
Wind	3-6
Cloud	75

End of Survey Data

Time	13:07
Temperature	60
Wind	1-3
Cloud	25

## Pond Feature (11 Items)

### Pond Feature - 1. OV-01

Pool or Area ID | OV-01

Photos

Status	Wet
Air Temp (Celsius)	14.5
Water Temp (Celsius)	14.7
Average Depth (cm)	6
Max Depth (cm)	11
Pool Length (m)	7
Pool Width (m)	3
Feature Condition	Disturbed (tire tracks, etc)
Fairy Shrimp Species	None

Other Species | Mosquito Larvae (Culicidae), Midges, Springtails

Notes |

### Pond Feature - 2. OV-03

Pool or Area ID | OV-03

Photos |

Status | Wet

Air Temp (Celsius) | 13.5

Water Temp (Celsius) | 14.2

Average Depth (cm) | 3

Max Depth (cm) | 4

Pool Length (m) | 3

Pool Width (m) | 2

Feature Condition | Trash, Disturbed (tire tracks, etc)

Fairy Shrimp Species | None

Other Species |

Notes |

### Pond Feature - 3. OV-02

Pool or Area ID | OV-02

Photos |

Status | Dry

Feature Condition |

Other Species |

Notes |

### Pond Feature - 4. OV-04

Pool or Area ID | OV-04

Photos |

Status | Dry

Feature Condition |

Other Species |

Notes |

### Pond Feature - 5. OV-05

Pool or Area ID | OV-05

Photos

Status | Dry

Feature Condition |

Other Species |

Notes |

### Pond Feature - 6. OV-06

Pool or Area ID | OV-06

Photos

Status | Dry

Feature Condition |

Other Species |

Notes |

### Pond Feature - 7. PV-08

Pool or Area ID | PV-08

Photos

Status | Dry

Feature Condition | Graded and no longer present

Other Species |

Notes | Road has been graded since last week's visit and feature has been covered. Removed from future sampling visits.

### Pond Feature - 8. OV-07

Pool or Area ID | OV-07

Photos

Status | Dry

Feature Condition |

Other Species |

Notes |

## Pond Feature - 9. OV-09

Pool or Area ID | OV-09

Photos

Status | Dry

Feature Condition |

Other Species |

Notes |

## Pond Feature - 10. OV-10

Pool or Area ID | OV-10

Photos

Status | Dry

Feature Condition | Disturbed (tire tracks, etc)

Other Species |

Notes |

## Pond Feature - 11. OV-11

Pool or Area ID | OV-11

Photos

Status | Wet

Air Temp (Celsius) | 13.8

Water Temp (Celsius) | 14.5

Average Depth (cm) | 1

Max Depth (cm) | 3

Pool Length (m) | 1

Pool Width (m) | 1

Feature Condition | Asphalt

Fairy Shrimp Species | None

Other Species |

Notes |

## General Notes



## Survey Data

Survey Type	Fairy Shrimp Wet Season
Project	Oak Valley North
Date	February 25, 2024
Round	7
Surveyor	Garrett Huffman
Trainee	

## Environmental Data

Start of Survey Data

Time	11:04
Temperature	64
Wind	1-2
Cloud	100

End of Survey Data

Time	13:07
Temperature	67
Wind	4-8
Cloud	100

## Pond Feature (11 Items)

### Pond Feature - 1. OV-01

Pool or Area ID	OV-01
Photos	
Status	Wet
Air Temp (Celsius)	13.5
Water Temp (Celsius)	15.3
Average Depth (cm)	5
Max Depth (cm)	9
Pool Length (m)	6
Pool Width (m)	2
Feature Condition	Disturbed (tire tracks, etc)
Fairy Shrimp Species	None

Other Species | Mosquito Larvae (Culicidae), Midges, Springtails

Notes |

### Pond Feature - 2. OV-03

Pool or Area ID | OV-03

Photos |

Status | Wet

Air Temp (Celsius) | 14.5

Water Temp (Celsius) | 13.2

Average Depth (cm) | 2

Max Depth (cm) | 4

Pool Length (m) | 2

Pool Width (m) | 2

Feature Condition | Trash, Disturbed (tire tracks, etc)

Fairy Shrimp Species | None

Other Species |

Notes |

### Pond Feature - 3. OV-02

Pool or Area ID | OV-02

Photos |

Status | Dry

Feature Condition |

Other Species |

Notes |

### Pond Feature - 4. OV-04

Pool or Area ID | OV-04

Photos |

Status | Dry

Feature Condition |

Other Species |

Notes |

### Pond Feature - 5. OV-05

Pool or Area ID | OV-05

Photos

Status | Dry

Feature Condition |

Other Species |

Notes |

### Pond Feature - 6. OV-06

Pool or Area ID | OV-06

Photos

Status | Dry

Feature Condition |

Other Species |

Notes |

### Pond Feature - 7. PV-08

Pool or Area ID | PV-08

Photos

Status | Dry

Feature Condition | Graded and no longer present

Other Species |

Notes | Road has been graded since last week's visit and feature has been covered. Removed from future sampling visits.

### Pond Feature - 8. OV-07

Pool or Area ID | OV-07

Photos

Status | Dry

Feature Condition |

Other Species |

Notes |

## Pond Feature - 9. OV-09

Pool or Area ID | OV-09

Photos

Status | Dry

Feature Condition |

Other Species |

Notes |

## Pond Feature - 10. OV-10

Pool or Area ID | OV-10

Photos

Status | Dry

Feature Condition | Disturbed (tire tracks, etc)

Other Species |

Notes | Road has been graded and feature covered. Discontinue visiting for future sampling trips.

## Pond Feature - 11. OV-11

Pool or Area ID | OV-11

Photos

Status | Dry

Feature Condition | Asphalt

Other Species |

Notes |

## General Notes

Notes | Update notes

## Survey Data

Survey Type	Fairy Shrimp Wet Season
Project	Oak Valley North
Date	March 3, 2024
Round	8
Surveyor	Garrett Huffman
Trainee	Blanca Martinez

## Environmental Data

Start of Survey Data

Time	12:04
Temperature	52
Wind	2-3
Cloud	60

End of Survey Data

Time	13:07
Temperature	60
Wind	1-3
Cloud	40

## Pond Feature (10 Items)

### Pond Feature - 1. OV-01

Pool or Area ID | OV-01

Photos



Status	Wet
Air Temp (Celsius)	10.3
Water Temp (Celsius)	16.4
Average Depth (cm)	11
Max Depth (cm)	20
Pool Length (m)	12
Pool Width (m)	8
Feature Condition	Disturbed (tire tracks, etc)
Fairy Shrimp Species	None
Other Species	Water Beetles (Coleoptera), Mosquito Larvae (Culicidae), Midges, Springtails
Notes	

**Pond Feature - 2. OV-02 & OV-03**

Pool or Area ID	OV-02 & OV-03
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**Photos**



Status	Wet
Air Temp (Celsius)	10
Water Temp (Celsius)	15.1
Average Depth (cm)	6
Max Depth (cm)	9
Pool Length (m)	15
Pool Width (m)	7
Feature Condition	Trash, Disturbed (tire tracks, etc)
Fairy Shrimp Species	None
Other Species	
Notes	Features have merged together

### Pond Feature - 3. OV-04

Pool or Area ID	OV-04
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#### Photos



Status	Wet
Air Temp (Celsius)	10
Water Temp (Celsius)	16.2
Average Depth (cm)	5
Max Depth (cm)	6
Pool Length (m)	7
Pool Width (m)	2
Feature Condition	Disturbed (tire tracks, etc)
Fairy Shrimp Species	None
Other Species	
Notes	

## Pond Feature - 4. OV-05

Pool or Area ID | OV-05

### Photos



Status | Dry

Feature Condition |

Other Species |

Notes |

## Pond Feature - 5. OV-06

Pool or Area ID | OV-06

### Photos



Status | Dry

Feature Condition |

Other Species |

Notes |

**Pond Feature - 6. PV-08**

Pool or Area ID | PV-08

Photos



Status	Dry
Feature Condition	Graded and no longer present
Other Species	
Notes	Road has been graded since last week's visit and feature has been covered. Removed from future sampling visits.

**Pond Feature - 7. OV-07**

Pool or Area ID	OV-07
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Photos



Status | Dry

Feature Condition |

Other Species |

Notes |

**Pond Feature - 8. OV-09**

Pool or Area ID | OV-09

Photos



Status	Dry
Feature Condition	
Other Species	
Notes	

### Pond Feature - 9. OV-10

Pool or Area ID	OV-10
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#### Photos



Status	Wet
Air Temp (Celsius)	10.3
Water Temp (Celsius)	16.6
Average Depth (cm)	4
Max Depth (cm)	5
Pool Length (m)	9
Pool Width (m)	3

<b>Feature Condition</b>	Disturbed (tire tracks, etc)
<b>Fairy Shrimp Species</b>	None
<b>Other Species</b>	
<b>Notes</b>	Rain has washed away recent grading and ponded

## Pond Feature - 10. OV-11

<b>Pool or Area ID</b>	OV-11
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### Photos



<b>Status</b>	Wet
<b>Air Temp (Celsius)</b>	11
<b>Water Temp (Celsius)</b>	17.9
<b>Average Depth (cm)</b>	4
<b>Max Depth (cm)</b>	5
<b>Pool Length (m)</b>	5
<b>Pool Width (m)</b>	5
<b>Feature Condition</b>	Asphalt
<b>Fairy Shrimp Species</b>	None
<b>Other Species</b>	
<b>Notes</b>	

## General Notes

<b>Notes</b>	
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## Survey Data

Survey Type	Fairy Shrimp Wet Season
Project	Oak Valley North
Date	March 10, 2024
Round	9
Surveyor	Garrett Huffman
Trainee	Blanca Martinez

## Environmental Data

Start of Survey Data

Time	11:45
Temperature	62
Wind	2-3
Cloud	30

End of Survey Data

Time	14:22
Temperature	66
Wind	1-3
Cloud	20

## Pond Feature (11 Items)

### Pond Feature - 1. OV-01

Pool or Area ID | OV-01

Photos



Status	Wet
Air Temp (Celsius)	15.5
Water Temp (Celsius)	12.1
Average Depth (cm)	10
Max Depth (cm)	20
Pool Length (m)	10
Pool Width (m)	7
Feature Condition	Disturbed (tire tracks, etc)
Fairy Shrimp Species	None
Other Species	Midges, Water Boatmen, etc (Hemiptera)
Notes	

## Pond Feature - 2. OV-03

Pool or Area ID	OV-03
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### Photos



Status	Wet
Air Temp (Celsius)	15.4
Water Temp (Celsius)	13.1
Average Depth (cm)	4
Max Depth (cm)	6
Pool Length (m)	4
Pool Width (m)	3
Feature Condition	Trash, Disturbed (tire tracks, etc)
Fairy Shrimp Species	Branchinecta lindahli
Voucher	No
Population Estimates	1's
Other Species	
Notes	Voucher not collected due to low numbers - field verified as Branchinecta lindahli

### Pond Feature - 3. OV-02

Pool or Area ID	OV-02
Photos	
Status	Dry
Feature Condition	
Other Species	
Notes	

### Pond Feature - 4. OV-04

Pool or Area ID	OV-04
Photos	
Status	Dry
Feature Condition	Disturbed (tire tracks, etc)
Other Species	
Notes	

### Pond Feature - 5. OV-05

Pool or Area ID	OV-05
Photos	
Status	Dry

Feature Condition	
Other Species	
Notes	

### Pond Feature - 6. OV-06

Pool or Area ID	OV-06
Photos	
Status	Dry
Feature Condition	
Other Species	
Notes	

### Pond Feature - 7. PV-08

Pool or Area ID	PV-08
Photos	
Status	Dry
Feature Condition	Graded and no longer present
Other Species	
Notes	Road has been graded since last week's visit and feature has been covered. Removed from future sampling visits.

### Pond Feature - 8. OV-07

Pool or Area ID	OV-07
Photos	
Status	Dry
Feature Condition	
Other Species	
Notes	

### Pond Feature - 9. OV-09

Pool or Area ID	OV-09
Photos	
Status	Dry

Feature Condition	
Other Species	
Notes	

### Pond Feature - 10. OV-10

Pool or Area ID	OV-10
Photos	
Status	Wet
Air Temp (Celsius)	10.3
Water Temp (Celsius)	16.6
Average Depth (cm)	4
Max Depth (cm)	5
Pool Length (m)	9
Pool Width (m)	3
Feature Condition	Disturbed (tire tracks, etc)
Fairy Shrimp Species	None
Other Species	
Notes	Rain has washed away recent grading and ponded

### Pond Feature - 11. OV-11

Pool or Area ID	OV-11
Photos	
Status	Wet
Air Temp (Celsius)	11
Water Temp (Celsius)	17.9
Average Depth (cm)	4
Max Depth (cm)	5
Pool Length (m)	5
Pool Width (m)	5
Feature Condition	Asphalt
Fairy Shrimp Species	None
Other Species	
Notes	

### General Notes



## Survey Data

Survey Type	Fairy Shrimp Wet Season
Project	Oak Valley North
Date	March 17, 2024
Round	10
Surveyor	Garrett Huffman
Trainee	Blanca Martinez

## Environmental Data

Start of Survey Data

Time	12:04
Temperature	62
Wind	2-3
Cloud	30

End of Survey Data

Time	14:22
Temperature	66
Wind	1-3
Cloud	20

## Pond Feature (11 Items)

### Pond Feature - 1. OV-01

Pool or Area ID	OV-01
Photos	
Status	Wet
Air Temp (Celsius)	15.5
Water Temp (Celsius)	12.1
Average Depth (cm)	10
Max Depth (cm)	20
Pool Length (m)	10
Pool Width (m)	7
Feature Condition	Disturbed (tire tracks, etc)
Fairy Shrimp Species	None

Other Species | Midges, Water Boatmen, etc (Hemiptera)

Notes

### Pond Feature - 2. OV-03

Pool or Area ID | OV-03

Photos

Status | Wet

Air Temp (Celsius) | 15.4

Water Temp (Celsius) | 13.1

Average Depth (cm) | 4

Max Depth (cm) | 6

Pool Length (m) | 4

Pool Width (m) | 3

Feature Condition | Trash, Disturbed (tire tracks, etc)

Fairy Shrimp Species | Branchinecta lindahli

Voucher | No

Population Estimates | 1's

Other Species

Notes | Voucher not collected due to low numbers - field verified as Branchinecta lindahli

### Pond Feature - 3. OV-02

Pool or Area ID | OV-02

Photos

Status | Dry

Feature Condition

Other Species

Notes

### Pond Feature - 4. OV-04

Pool or Area ID | OV-04

Photos

Status | Dry

Feature Condition | Disturbed (tire tracks, etc)

Other Species

Notes

### Pond Feature - 5. OV-05

Pool or Area ID | OV-05

Photos

Status | Dry

Feature Condition

Other Species

Notes

### Pond Feature - 6. OV-06

Pool or Area ID | OV-06

Photos

Status | Dry

Feature Condition

Other Species

Notes

### Pond Feature - 7. PV-08

Pool or Area ID | PV-08

Photos

Status | Dry

Feature Condition | Graded and no longer present

Other Species

Notes | Road has been graded since last week's visit and feature has been covered. Removed from future sampling visits.

### Pond Feature - 8. OV-07

Pool or Area ID | OV-07

Photos

Status | Dry

Feature Condition

Other Species

Notes

### Pond Feature - 9. OV-09

Pool or Area ID | OV-09

Photos

Status | Dry

Feature Condition |

Other Species |

Notes |

### Pond Feature - 10. OV-10

Pool or Area ID | OV-10

Photos

Status | Wet

Air Temp (Celsius) | 10.3

Water Temp (Celsius) | 16.6

Average Depth (cm) | 4

Max Depth (cm) | 5

Pool Length (m) | 9

Pool Width (m) | 3

Feature Condition | Disturbed (tire tracks, etc)

Fairy Shrimp Species | None

Other Species |

Notes | Rain has washed away recent grading and ponded

### Pond Feature - 11. OV-11

Pool or Area ID | OV-11

Photos

Status | Wet

Air Temp (Celsius) | 11

Water Temp (Celsius) | 17.9

Average Depth (cm) | 4

Max Depth (cm) | 5

Pool Length (m) | 5

<b>Pool Width (m)</b>	5
<b>Feature Condition</b>	Asphalt
<b>Fairy Shrimp Species</b>	None
<b>Other Species</b>	
<b>Notes</b>	

## General Notes

<b>Notes</b>	
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## Survey Data

Survey Type	Fairy Shrimp Wet Season
Project	Oak Valley North
Date	March 24, 2024
Round	11
Surveyor	Garrett Huffman
Trainee	Blanca Martinez

## Environmental Data

Start of Survey Data

Time	11:25
Temperature	58
Wind	3-6
Cloud	70

End of Survey Data

Time	13:12
Temperature	60
Wind	1-3
Cloud	80

## Pond Feature (11 Items)

### Pond Feature - 1. OV-01

Pool or Area ID	OV-01
Photos	
Status	Wet
Air Temp (Celsius)	13.5
Water Temp (Celsius)	13.4
Average Depth (cm)	7
Max Depth (cm)	18
Pool Length (m)	9
Pool Width (m)	7
Feature Condition	Disturbed (tire tracks, etc)
Fairy Shrimp Species	None

Other Species | Midges, Water Boatmen, etc (Hemiptera)

Notes

### Pond Feature - 2. OV-03

Pool or Area ID | OV-03

Photos

Status | Wet

Air Temp (Celsius) | 14.1

Water Temp (Celsius) | 12.8

Average Depth (cm) | 3

Max Depth (cm) | 5

Pool Length (m) | 3

Pool Width (m) | 2

Feature Condition | Trash, Disturbed (tire tracks, etc)

Fairy Shrimp Species | Branchinecta lindahli

Voucher | No

Population Estimates | 1's

Other Species

Notes

### Pond Feature - 3. OV-02

Pool or Area ID | OV-02

Photos

Status | Dry

Feature Condition

Other Species

Notes

### Pond Feature - 4. OV-04

Pool or Area ID | OV-04

Photos

Status | Dry

Feature Condition | Disturbed (tire tracks, etc)

Other Species

Notes

### Pond Feature - 5. OV-05

Pool or Area ID | OV-05

Photos

Status | Dry

Feature Condition |

Other Species |

Notes

### Pond Feature - 6. OV-06

Pool or Area ID | OV-06

Photos

Status | Dry

Feature Condition |

Other Species |

Notes

### Pond Feature - 7. PV-08

Pool or Area ID | PV-08

Photos

Status | Dry

Feature Condition | Graded and no longer present

Other Species |

Notes

### Pond Feature - 8. OV-07

Pool or Area ID | OV-07

Photos

Status | Dry

Feature Condition |

Other Species |

Notes

### Pond Feature - 9. OV-09

Pool or Area ID | OV-09

Photos

Status | Dry

Feature Condition

Other Species

Notes

### Pond Feature - 10. OV-10

Pool or Area ID | OV-10

Photos

Status | Wet

Air Temp (Celsius) | 12.5

Water Temp (Celsius) | 15.5

Average Depth (cm) | 4

Max Depth (cm) | 5

Pool Length (m) | 9

Pool Width (m) | 3

Feature Condition | Disturbed (tire tracks, etc)

Fairy Shrimp Species | None

Other Species

Notes

### Pond Feature - 11. OV-11

Pool or Area ID | OV-11

Photos

Status | Wet

Air Temp (Celsius) | 12.4

Water Temp (Celsius) | 15.7

Average Depth (cm) | 2

Max Depth (cm) | 3

Pool Length (m) | 3

<b>Pool Width (m)</b>	2
<b>Feature Condition</b>	Asphalt
<b>Fairy Shrimp Species</b>	None
<b>Other Species</b>	
<b>Notes</b>	

## General Notes

<b>Notes</b>	
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## Survey Data

Survey Type	Fairy Shrimp Wet Season
Project	Oak Valley North
Date	March 31, 2024
Round	12
Surveyor	Garrett Huffman
Trainee	Blanca Martinez

## Environmental Data

Start of Survey Data

Time	13:16
Temperature	58
Wind	2-3
Cloud	70

End of Survey Data

Time	14:37
Temperature	60
Wind	1-3
Cloud	80

## Pond Feature (11 Items)

### Pond Feature - 1. OV-01

Pool or Area ID	OV-01
Photos	
Status	Wet
Air Temp (Celsius)	13.8
Water Temp (Celsius)	14.5
Average Depth (cm)	6
Max Depth (cm)	14
Pool Length (m)	7
Pool Width (m)	5
Feature Condition	Disturbed (tire tracks, etc)
Fairy Shrimp Species	None

Other Species | Midges, Water Boatmen, etc (Hemiptera)

Notes

### Pond Feature - 2. OV-03

Pool or Area ID | OV-03

Photos

Status | Wet

Air Temp (Celsius) | 13.7

Water Temp (Celsius) | 16.3

Average Depth (cm) | 3

Max Depth (cm) | 4

Pool Length (m) | 2

Pool Width (m) | 2

Feature Condition | Trash, Disturbed (tire tracks, etc)

Fairy Shrimp Species | Branchinecta lindahli

Voucher | No

Population Estimates | 1's

Other Species

Notes

### Pond Feature - 3. OV-02

Pool or Area ID | OV-02

Photos

Status | Dry

Feature Condition

Other Species

Notes

### Pond Feature - 4. OV-04

Pool or Area ID | OV-04

Photos

Status | Dry

Feature Condition | Disturbed (tire tracks, etc)

Other Species

Notes

### Pond Feature - 5. OV-05

Pool or Area ID | OV-05

Photos

Status | Dry

Feature Condition |

Other Species |

Notes

### Pond Feature - 6. OV-06

Pool or Area ID | OV-06

Photos

Status | Dry

Feature Condition |

Other Species |

Notes

### Pond Feature - 7. PV-08

Pool or Area ID | PV-08

Photos

Status | Dry

Feature Condition | Graded and no longer present

Other Species |

Notes

### Pond Feature - 8. OV-07

Pool or Area ID | OV-07

Photos

Status | Dry

Feature Condition |

Other Species |

Notes

### Pond Feature - 9. OV-09

Pool or Area ID | OV-09

Photos

Status | Dry

Feature Condition

Other Species

Notes

### Pond Feature - 10. OV-10

Pool or Area ID | OV-10

Photos

Status | Wet

Air Temp (Celsius) | 11.7

Water Temp (Celsius) | 15.8

Average Depth (cm) | 3

Max Depth (cm) | 4

Pool Length (m) | 7

Pool Width (m) | 3

Feature Condition | Disturbed (tire tracks, etc)

Fairy Shrimp Species | None

Other Species

Notes

### Pond Feature - 11. OV-11

Pool or Area ID | OV-11

Photos

Status | Dry

Feature Condition | Asphalt

Other Species

Notes

## General Notes

Notes

## Survey Data

Survey Type	Fairy Shrimp Wet Season
Project	Oak Valley North
Date	April 7, 2024
Round	13
Surveyor	Garrett Huffman
Trainee	Blanca Martinez

## Environmental Data

Start of Survey Data

Time	12:04
Temperature	62
Wind	4-8
Cloud	25

End of Survey Data

Time	14:22
Temperature	65
Wind	0-2
Cloud	80

## Pond Feature (11 Items)

### Pond Feature - 1. OV-01

Pool or Area ID	OV-01
Photos	
Status	Wet
Air Temp (Celsius)	
Water Temp (Celsius)	15.4
Average Depth (cm)	6
Max Depth (cm)	12
Pool Length (m)	4
Pool Width (m)	3
Feature Condition	Disturbed (tire tracks, etc)
Fairy Shrimp Species	None

Other Species | Midges, Water Boatmen, etc (Hemiptera)

Notes |

### Pond Feature - 2. OV-03

Pool or Area ID | OV-03

Photos |

Status | Dry

Feature Condition | Trash, Disturbed (tire tracks, etc)

Other Species |

Notes |

### Pond Feature - 3. OV-02

Pool or Area ID | OV-02

Photos |

Status | Dry

Feature Condition |

Other Species |

Notes |

### Pond Feature - 4. OV-04

Pool or Area ID | OV-04

Photos |

Status | Dry

Feature Condition | Disturbed (tire tracks, etc)

Other Species |

Notes |

### Pond Feature - 5. OV-05

Pool or Area ID | OV-05

Photos |

Status | Dry

Feature Condition |

Other Species

Notes

### Pond Feature - 6. OV-06

Pool or Area ID

OV-06

Photos

Status

Dry

Feature Condition

Other Species

Notes

### Pond Feature - 7. PV-08

Pool or Area ID

PV-08

Photos

Status

Dry

Feature Condition

Graded and no longer present

Other Species

Notes

Road has been graded since last week's visit and feature has been covered. Removed from future sampling visits.

### Pond Feature - 8. OV-07

Pool or Area ID

OV-07

Photos

Status

Dry

Feature Condition

Other Species

Notes

### Pond Feature - 9. OV-09

Pool or Area ID

OV-09

Photos

Status

Dry

Feature Condition

Other Species

Notes

### Pond Feature - 10. OV-10

Pool or Area ID

OV-10

Photos

Status

Dry

Feature Condition

Disturbed (tire tracks, etc)

Other Species

Notes

### Pond Feature - 11. OV-11

Pool or Area ID

OV-11

Photos

Status

Dry

Feature Condition

Asphalt

Other Species

Notes

### General Notes

Notes

## Survey Data

Survey Type	Fairy Shrimp Wet Season
Project	Oak Valley North
Date	April 14, 2024
Round	14
Surveyor	Garrett Huffman
Trainee	Blanca Martinez

## Environmental Data

Start of Survey Data

Time	11:16
Temperature	58
Wind	2-3
Cloud	70

End of Survey Data

Time	13:30
Temperature	60
Wind	2-6
Cloud	100

## Pond Feature (11 Items)

### Pond Feature - 1. OV-01

Pool or Area ID	OV-01
Photos	
Status	Wet
Air Temp (Celsius)	
Water Temp (Celsius)	17.8
Average Depth (cm)	4
Max Depth (cm)	6
Pool Length (m)	3
Pool Width (m)	2
Feature Condition	Disturbed (tire tracks, etc)
Fairy Shrimp Species	None

Other Species	Midges, Water Boatmen, etc (Hemiptera)
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### Pond Feature - 2. OV-03

Pool or Area ID	OV-03
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Photos	
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Status	Wet
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Air Temp (Celsius)	
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Water Temp (Celsius)	16.4
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Average Depth (cm)	2
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Max Depth (cm)	3
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Pool Length (m)	3
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Pool Width (m)	2
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Feature Condition	Trash, Disturbed (tire tracks, etc)
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Fairy Shrimp Species	None
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Other Species	
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Notes	
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### Pond Feature - 3. OV-02

Pool or Area ID	OV-02
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Photos	
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Status	Wet
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Air Temp (Celsius)	
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Water Temp (Celsius)	16,7
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Average Depth (cm)	2
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Max Depth (cm)	5
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Pool Length (m)	3
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Pool Width (m)	1
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Feature Condition	Disturbed (tire tracks, etc)
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Fairy Shrimp Species	None
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Other Species	
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Notes	
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### Pond Feature - 4. OV-04

Pool or Area ID	OV-04
Photos	
Status	Dry
Feature Condition	Disturbed (tire tracks, etc)
Other Species	
Notes	

**Pond Feature - 5. OV-05**

Pool or Area ID	OV-05
Photos	
Status	Dry
Feature Condition	
Other Species	
Notes	

**Pond Feature - 6. OV-06**

Pool or Area ID	OV-06
Photos	
Status	Dry
Feature Condition	
Other Species	
Notes	

**Pond Feature - 7. PV-08**

Pool or Area ID	PV-08
Photos	
Status	Dry
Feature Condition	Graded and no longer present
Other Species	
Notes	Road has been graded since last week's visit and feature has been covered. Removed from future sampling visits.

**Pond Feature - 8. OV-07**

Pool or Area ID | OV-07

Photos

Status | Dry

Feature Condition |

Other Species |

Notes |

### Pond Feature - 9. OV-09

Pool or Area ID | OV-09

Photos

Status | Dry

Feature Condition | Disturbed (tire tracks, etc)

Other Species |

Notes |

### Pond Feature - 10. OV-10

Pool or Area ID | OV-10

Photos

Status | Wet

Air Temp (Celsius) |

Water Temp (Celsius) |

Average Depth (cm) | 3

Max Depth (cm) | 4

Pool Length (m) | 2

Pool Width (m) | 1

Feature Condition | Disturbed (tire tracks, etc)

Fairy Shrimp Species | None

Other Species |

Notes |

### Pond Feature - 11. OV-11

Pool or Area ID | OV-11

Photos

Status	Wet
Air Temp (Celsius)	
Water Temp (Celsius)	17.5
Average Depth (cm)	1
Max Depth (cm)	2
Pool Length (m)	1
Pool Width (m)	1
Feature Condition	Asphalt
Fairy Shrimp Species	None
Other Species	
Notes	

## General Notes

Notes	
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## Survey Data

Survey Type	Fairy Shrimp Wet Season
Project	Oak Valley North
Date	April 21, 2024
Round	15
Surveyor	Garrett Huffman
Trainee	Blanca Martinez

## Environmental Data

Start of Survey Data

Time	11:00
Temperature	75
Wind	2-3
Cloud	0

End of Survey Data

Time	12:30
Temperature	85
Wind	2-6
Cloud	0

## Pond Feature (11 Items)

### Pond Feature - 1. OV-01

Pool or Area ID	OV-01
Photos	
Status	Dry
Feature Condition	Disturbed (tire tracks, etc)
Other Species	
Notes	

### Pond Feature - 2. OV-03

Pool or Area ID	OV-03
Photos	

Status	Dry
Feature Condition	Trash, Disturbed (tire tracks, etc)
Other Species	
Notes	

### Pond Feature - 3. OV-02

Pool or Area ID	OV-02
Photos	
Status	Dry
Feature Condition	Disturbed (tire tracks, etc)
Other Species	
Notes	

### Pond Feature - 4. OV-04

Pool or Area ID	OV-04
Photos	
Status	Dry
Feature Condition	Disturbed (tire tracks, etc)
Other Species	
Notes	

### Pond Feature - 5. OV-05

Pool or Area ID	OV-05
Photos	
Status	Dry
Feature Condition	
Other Species	
Notes	

### Pond Feature - 6. OV-06

Pool or Area ID	OV-06
Photos	

Status	Dry
Feature Condition	
Other Species	
Notes	

### Pond Feature - 7. PV-08

Pool or Area ID	PV-08
Photos	
Status	Dry
Feature Condition	Graded and no longer present
Other Species	
Notes	Road has been graded since last week's visit and feature has been covered. Removed from future sampling visits.

### Pond Feature - 8. OV-07

Pool or Area ID	OV-07
Photos	
Status	Dry
Feature Condition	
Other Species	
Notes	

### Pond Feature - 9. OV-09

Pool or Area ID	OV-09
Photos	
Status	Dry
Feature Condition	Disturbed (tire tracks, etc)
Other Species	
Notes	

### Pond Feature - 10. OV-10

Pool or Area ID	OV-10
Photos	

Status	Wet
Air Temp (Celsius)	
Water Temp (Celsius)	
Average Depth (cm)	3
Max Depth (cm)	4
Pool Length (m)	2
Pool Width (m)	1
Feature Condition	Disturbed (tire tracks, etc)
Fairy Shrimp Species	None
Other Species	
Notes	

### Pond Feature - 11. OV-11

Pool or Area ID	OV-11
Photos	
Status	Dry
Feature Condition	Asphalt
Other Species	
Notes	

### General Notes

Notes	
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