
Appendix E-2

Fairy Shrimp Survey Report

November 21, 2024

13985.25

U.S. Fish and Wildlife Service
Attention: Stacey Love, Recovery Permit Coordinator
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

Subject: Survey Summary Report for the 2023-2024 Protocol-Level, Wet Season Large Branchiopod Survey for the Proposed Double Butte Battery Energy Storage Project, City of Menifee, Riverside County, California

Dear Ms. Stacey Love:

This letter provides a summary of the 2023-2024 protocol-level, wet season survey for federally listed large branchiopod species (i.e., fairy shrimp species) conducted in 26 on-site, plus five (5) off-site basins by Wildlife Biologists, Brock Ortega (TE813545-09) and Kevin Livergood (TE-172638-4) of Dudek for the proposed Double Butte Battery Energy Storage Project (Project) in the City of Menifee, Riverside County, California (Figure 1). The 2023-2024 wet season fairy shrimp survey followed the most recent U.S. Fish and Wildlife Service (USFWS) survey guidelines, titled *Survey Guidelines for the Listed Large Branchiopods* dated November 13, 2017 (USFWS 2017). This wet season fairy shrimp survey satisfies a portion of the USFWS survey requirements, as approved in 2023, which will include two consecutive wet season surveys. This study continues where the 2022/2023 study ended with data collected through October 2023 in the previous report, and data collected since then in this report. While some basins fulfilled their 120-survey period in March 2024, others did not. Due to the unpredictable rainfall patterns that we now experience, it was decided to continue surveying through the summer of 2024 in case additional substantial storms happened.

The following report provides a brief description of the proposed project, the fairy shrimp species that have the potential to occur within the vicinity of the proposed project, the survey methods, and the results of the wet season fairy shrimp survey.

Proposed Project Location & Description & Location

The Project site consists of approximately 27 acres of land on seven parcels identified as Assessor's Parcel Number (APN) 331-190-010, 331-190-011, 331-190-014, 331-190-017, 331-190-047, 331-190-060, and 331-190-056, and 17.8 acres of land for an off-site construction laydown-yard identified as APN 331-240-011. All parcels are in the city of Menifee, California. The Project will include the construction and operation of a 500-megawatt utility-scale (lithium-ion, flow, or other technology) battery energy storage system. The primary electrical equipment includes battery modules and power conversion equipment.

The project area is relatively flat and the areas that supported ponding are on a large, graded pad that includes a mix of gravel, hard-packed soil and ruderal vegetation. The largest ponded areas are situated in the northwest within excavated areas. Like 2022/2023, these areas did merge periodically due to the amount of rainfall in the

2023-2024 season. The basins appear to be filled by direct rainfall and by surrounding runoff. The majority of the basins provide low quality habitat for fairy shrimp because of a lack of organic material for food and due to a short hydroperiod. The majority also appear to be repeatedly impacted by vehicle traffic from mowing, discing, and other maintenance and recreational activities. Representative photographs of the basins are provided in Attachment A.

Fairy Shrimp Natural History

The project area contains 26 on-site basins and 5 off-site basins that provide fairy shrimp habitat with potential to support the common, nonsensitive versatile fairy shrimp (*Branchinecta lindahli*), as well as three (3) federally listed fairy shrimp species, vernal pool fairy shrimp (*Branchinecta lynchi*), Riverside fairy shrimp (*Streptocephalus woottoni*), and San Diego fairy shrimp (*Branchinecta sandiegoensis*).

The Riverside fairy shrimp was federally listed as endangered in August of 1993 (USFWS 1993) and is a Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP)-covered species. On December 4, 2012, USFWS published a Final Rule revising the critical habitat for the Riverside fairy shrimp that became effective on January 3, 2013 (USFWS 2012). The revised critical habitat now includes land in three units in Ventura, Orange, and San Diego counties, for a total of approximately 1,724 acres of critical habitat for this species. No critical habitat for San Diego fairy shrimp occurs in Riverside County in the original or revised Final Rules.

The vernal pool fairy shrimp was federally listed as threatened on September 19, 1994 (USFWS 1994) and is a MSHCP-covered species. On August 11, 2005, USFWS published a Final Rule designating 858,846 acres of critical habitat for four vernal pool crustaceans and 11 vernal pool plants that became effective on September 12, 2005 (USFWS 2005). This critical habitat includes 597,821 acres of land from Oregon south to Ventura County, California. No critical habitat for vernal pool fairy shrimp occurs in Riverside County in this Final Rule.

The San Diego fairy shrimp was federally listed as endangered in February 1997 (USFWS 1997). On December 12, 2007, USFWS published a Final Rule revising the critical habitat for the San Diego fairy shrimp that became effective on January 11, 2008 (USFWS 2007). This revised Final Rule designated critical habitat for the San Diego fairy shrimp to include approximately 3,082 acres of habitat in five units, with a total of 29 subunits throughout Orange and San Diego counties, California. No critical habitat for San Diego fairy shrimp occurs in Riverside County in the original or revised Final Rules.

Survey Methods

The wet season fairy shrimp survey followed the most recent USFWS survey guidelines, titled *Survey Guidelines for the Listed Large Branchiopods* dated November 13, 2017 (USFWS 2017). This wet season fairy shrimp survey satisfies a portion of the USFWS survey requirements approved in 2023, which include two consecutive wet season surveys.

Following approval from USFWS to conduct the 2023-2024 wet season fairy shrimp survey, Dudek immediately initiated the wet sampling efforts. During the initial sampling event, Dudek assessed the entire project area for inundated/potential basins and sampled all inundated basins identified. During each subsequent sampling event, Dudek visited all basins that were inundated during the previous sampling event to determine if the basins were

still holding water. If a rain event occurred between sampling events, Dudek also visited all known and potential basins that may have been inundated by the rain event while also re-assessing the survey area for new basins.

During each sampling event, Dudek biologists recorded information about each inundated basin, such as air temperature, water temperature, average depth, approximate size, habitat condition (if changed), voucher information, and other relevant notes. Dudek sampled each inundated basin by sweeping a hand-held net through the water, examining the net contents, and recording all aquatic species. For fairy shrimp species observed, Dudek noted the reproductive status and approximate numbers of fairy shrimp in each basin and identified the species in the field with a hand lens or in the lab with a microscope, if field identification was not possible. In addition, as necessary during the survey season, Dudek estimated the maximum depth and maximum surface area of each basin by using a handheld Global Positioning System (GPS) unit to record the approximate boundaries of each basin. Dudek completed the basin sampling once a basin dried up and was not re-inundated during the wet season or once the basin reached 120 days of continual inundation. Due to sporadic rain events throughout the season, surveys continued through May 2024.

Results

The following sections provide a summary of the 2023-2024 wet season survey results.

Summary of Rainfall

Attachment B provides a summary of precipitation statistics, including monthly precipitation totals for the 2023-2024 rainfall year from the Riverside Railroad Canyon Dam location (Site 163) near Canyon Lake, Riverside County (Riverside County Flood Control, June 2024).

The precipitation total for the 2023-2024 rainy season was above average, with a total of 17.2 inches recorded between July 2023 and June 2024, compared to an average of 9.0 inches typically recorded during this time period. Typically, fairy shrimp hydrology is monitored during the late fall to early winter when ephemeral depressions and seasonal ponds are filled during the rainy season. In 2023, there were single rain events in September, October, and November, with the onset of the rainy season beginning in November with a single-day event totaling 0.56 inches. In December, there was a four-day event totaling 0.92 inches, with a single day event of 0.04 inches. In January 2024, there were two events – 0.20 inches on January 3rd and 4th, and between January 21st through 23rd (1.52 inches) – totaling 1.72 inches. In February, there were two events – 4.56 inches between the 1st and 10th, and 0.71 inches between the 20th and 22nd. March and April rainfall totals were 3.17 inches.

The project area is in Western Riverside County in Southern California, which never was during the study period and is currently not classified as being under drought conditions according to the Palmer Drought Index as of September 2024 (National Drought Mitigation Center-Composite Drought Indicators Map; September 23, 2024). The Palmer Drought Index is a measurement of dryness based on recent precipitation and temperature, which can be used to determine long-term drought conditions on a regional level.

Summary of Survey Results

A survey summary is provided in Attachment B. The site was reviewed for basins that satisfied minimum ponding depths that would initiate surveys from the outset of the rainy season. The Main basin 1 continued to stay inundated into this survey season (see 2022, 2023 report), but the first rain event of this study period occurred on November 16, 2023, which started inundating basins. The first pools met criteria on November 16, 2023. These were dry by December 10, 2023, without exhibiting fairy shrimp. They refilled, meeting criteria on December 20, 2023, and were monitored on a weekly basis, until fairy shrimp were initially detected on December 31, 2023. Surveys continued at a 7-day interval until April 29, 2024. All but pool "Main 1" were dry when the study finished.

The wet season survey consisted of 25 sampling visits to 31 basins including on and off-site areas. Wet season sampling was performed by USFWS-permitted biologists Brock Ortega (TE-813545-9) and Kevin Livergood (TE-172638-4). Figure 2-1 and Figure 2-2 depict the location of each basin. Of the 26 basins that were sampled within the project area, fairy shrimp were detected in five (5) basins, plus each of the five (5) off-site basins, for a total of ten (10) occupied basins. The only species detected was the versatile fairy shrimp (*Branchinecta lindahli*). Representative organisms present within many of the larger features, as noted on the USFWS wet season data sheets (Attachment D), included species such as seed shrimp (Class *Ostracoda*), water flea (Order *Cladocera*), water boatmen (Order *Hemiptera*), mosquito larvae (Order *Diptera*), and western spadefoot toad (*Spea hammondi*).

The project area contains a variety of depressional features, such as excavated basins, road ruts, ditches, and tire tracks that provide potential fairy shrimp habitat. The basins appear to be filled by direct rainfall with most providing low quality habitat for fairy shrimp because they occur on gravelly fill soils that are repeatedly impacted by vehicle traffic from the surrounding area, plus mowing and discing. Attachment A provides representative photographs of the basins.

Summary

Of the 31 basins that were sampled within the project area plus off-site areas, fairy shrimp were detected in five of the on-site basins and each of the five (5) off-site basins. Only the common versatile fairy shrimp was detected. No Riverside fairy shrimp, vernal pool fairy shrimp, or San Diego fairy shrimp were observed in the project area during the 2023-2024 wet season survey.

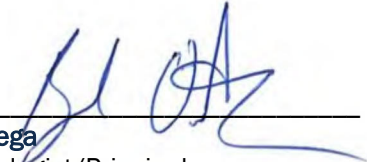
As the second wet season survey in two consecutive years, the 2023-2024 wet season fairy shrimp survey satisfies USFWS survey requirements. Typically, fairy shrimp surveys include a minimum of one complete dry season survey and one complete wet season survey within a 3-year period. However, in 2023, the Carlsbad USFWS office allowed for a second consecutive wet season survey to replace the dry season survey.

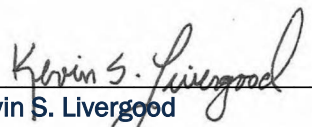
TO: STACEY LOVE
SUBJECT: SURVEY SUMMARY REPORT FOR THE 2023-2024 PROTOCOL-LEVEL, WET SEASON LARGE BRANCHIOPOD
SURVEY FOR THE PROPOSED DOUBLE BUTTE BATTERY ENERGY STORAGE PROJECT, CITY OF MENIFEE, RIVERSIDE
COUNTY, CALIFORNIA

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

Please feel free to contact Brock Ortega at bortega@dudek.com or 619.884.0467 if you have any questions regarding the contents of this report.

Sincerely,


Brock Ortega
Senior Ecologist/Principal
Recovery Permit: TE 813545-9


Kevin S. Livergood
Recovery Permit: TE 172638-4

Att.: *Figure 1: Project Location*
Figure 2-1: Project Site - Riverine, Vernal Pool, and Fairy Shrimp Habitat
Figure 2-2: Conceptual Restoration - Riverine, Vernal Pool, and Fairy Shrimp Habitat
A: Representative Photographs
B: Rainfall Statistics and Survey Summary Information
C: USFWS Wet Season Data Sheets

References

National Drought Mitigation Center

2024 Composite Drought Indicators. <https://ndmcblands.unl.edu/Archive.aspx>. Accessed: September 23, 2024.

Riverside County Flood Control

2024 Railroad Canyon Dam Site 163: <https://content.rcflood.org/data/163.ytd.jpg>. Accessed: June.

U.S. Fish and Wildlife Service (USFWS)

- 1993 Determination of Endangered Status for Three Vernal Pool Plants and the Riverside Fairy Shrimp. Federal Register 58(147): 41384-41392. Washington, D.C.: USFWS. 41384-41392. Washington, D.C.: USFWS.
- 1994 Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the 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): 42136-48153. Washington, D.C.: Federal Register 59(180): 42136-48153. D.C.: USFWS.
- 1997 Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the San Diego Fairy Shrimp. 50 CFR Part 17. February 3, 1997. 50 CFR Part 17. February 3.
- 2005 Endangered and Threatened Wildlife and Plants; Final Designation of Critical Habitat for Four Vernal Pool Crustaceans and Eleven Vernal Pool Plants in California and Southern Oregon; Final Rule. Federal Register 70(154): 46923-46999. Washington, D.C.
- 2007 Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the San Diego Fairy Shrimp (*Branchinecta sandiegonensis*). 50 CFR Part 17.
- 2012 Endangered and Threatened Wildlife and Plants; Revised Critical Habitat for the Riverside Fairy Shrimp; Final Rule. Federal Register: 77(233): 72070-72140, Washington, D.C.
- 2017 Survey Guidelines for the Listed Large Branchiopods. Nov 13, 2017.



2022/2023 Wet Season Large Branchiopod Survey for the Proposed Double Butte Battery Energy Storage Project

FIGURE 1

Project Location



SOURCE: Bing Maps; Riverside County 2023

FIGURE 2-1

DUDEK



0 135 270 Feet

Project Site - Riverine, Vernal Pool, and Fairy Shrimp Habitat

2022/2023 Wet Season Large Branchiopod Survey for the Proposed Double Butte Battery Energy Storage Project



SOURCE: Bing Maps; Riverside County 2023

FIGURE 2-2
Conceptual Restoration - Riverine, Vernal Pool, and Fairy Shrimp Habitat

2022/2023 Wet Season Large Branchiopod Survey for the Proposed Double Butte Battery Energy Storage Project

Attachment A

Representative Photographs



Photograph 1. View of Main Pool 1 showing feature and tracks (taken 11/17/22; facing north).



Photograph 2. View of Main Pool 2 and covered road between in and Main Pool 1. Suring the peak, both pools were connected. (taken 2/1/23; facing south).



Photograph 3. View of smaller features and pad area (taken 2/1/23; facing southwest).

Attachment B

Rainfall Statistics and Survey Summary Information

Double Butte
Fairy Shrimp Sampling Results

BO

Rain Events	Oct-23	11/16/23					12/20-24/2023	12/31/23	1/3-1/4/2024		1/21-1/23			2/1-2/10		2/20-2/22	3/2-3/3	3/6-3/7	3/16	3/29-4/1					
	See 2022/2023 rpt 0.56"						0.92"	0.04"	0.20"		1.52"			4.56		0.71"	0.12"	0.67"	0.08"	2.3"					
	See 2022/2023 rpt	11/19/23	11/26/23	12/3/23	12/10/23	12/17/23	12/26/23	12/31/23	1/7/24	1/14/24	1/24/24	1/28/24	2/4/24	2/11/24	2/19/24	2/26/24	3/4/24	3/11/24	3/18/24	3/25/24	4/1/24	4/8/24	4/15/24	4/22/24	4/29/24
Main 1	Ponded, No FS	Ponded, No FS	Ponded, No FS	Ponded, No FS	Dry	Dry	Ponded, No FS	OB	OB	BRLI	BRLI	BRLI	BRLI	BRLI	BRLI	Ponded, No FS	Ponded, No FS	Ponded, No FS	Ponded, No FS	Ponded, No FS	Ponded, No FS	>120 days	>120 days	>120 days	>120 days
Main 2	Dry	Ponded, No FS	Ponded, No FS	Dry	Dry	Dry	Ponded, No FS	OB	OB	BRLI	BRLI	BRLI	BRLI	BRLI	BRLI	BRLI	Ponded, No FS	Ponded, No FS	Ponded, No FS	Ponded, No FS	Ponded, No FS	Ponded, No FS	Ponded, No FS	Dry	Dry
1	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Dry
2	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Dry
3a	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Dry
3b	Dry	Dry	Dry	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Ponded, No FS	Dry	Ponded, No FS	Dry	Ponded, No FS	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Dry
4	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Dry
5	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
6	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Dry
7	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Dry
8	Dry	Dry	Dry	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Ponded, No FS	Dry	Ponded, No FS	Dry	Ponded, No FS	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Dry
9	Dry	Dry	Dry	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Ponded, No FS	Dry	Ponded, No FS	Dry	Ponded, No FS	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Dry
10	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Dry
11	Dry	Dry	Dry	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Ponded, No FS	Ponded, No FS	Dry	Ponded, No FS	Dry	Ponded, No FS	Ponded, No FS	Ponded, No FS	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Dry
12	Dry	Dry	Dry	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Ponded, No FS	Dry	Ponded, No FS	Dry	Ponded, No FS	Dry	Dry	Ponded, No FS	Ponded, No FS	Dry	Dry	Dry
13	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Dry
14	Dry	Dry	Dry	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Ponded, No FS	Dry	Ponded, No FS	Dry	Ponded, No FS	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Dry
15	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Dry
16	Dry	Dry	Dry	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Ponded, No FS	Dry	Ponded, No FS	Dry	Ponded, No FS	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Dry
17	Dry	Dry	Dry	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Ponded, No FS	Dry	Ponded, No FS	Dry	Ponded, No FS	Dry	Dry	Ponded, No FS	BRLI	Dry	Dry	Dry
18	Dry	Dry	Dry	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Ponded, No FS	Dry	Ponded, No FS	Dry	Ponded, No FS	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Dry
19	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Dry
20 (OB)															BRLI	OB	OB	OB	OB	OB	OB	OB	OB	OB	Discd
22																BRLI	Ponded, No FS	Ponded, No FS	BRLI	Dry	Ponded, No FS	BRLI	Dry	Dry	Dry
23																Dry	Dry	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Dry
24																BRLI	Ponded, No FS	BRLI	BRLI	Ponded, No FS	Ponded, No FS	BRLI	BRLI	Dry	Dry
25																Ponded, No FS	Dry	Ponded, No FS	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Dry
OFF-SITE																									
A	Dry	Ponded, No FS	Ponded, No FS	Dry	Dry	Dry	Ponded, No FS	Ponded, No FS	Ponded, No FS	Dry	Ponded, No FS	Ponded, No FS	OB	OB	BRLI	BRLI	BRLI	BRLI	BRLI	Dry	Ponded, No FS	Ponded, No FS	Dry	Dry	Dry
B	Dry	Ponded, No FS	Ponded, No FS	Dry	Dry	Dry	Ponded, No FS	Ponded, No FS	Ponded, No FS	Dry	Ponded, No FS	Ponded, No FS	OB	OB	BRLI	BRLI	BRLI	Ponded, No FS	BRLI	Dry	Ponded, No FS	BR Immature	Dry	Dry	Dry
C	Dry	Dry	Dry	Dry	Dry	Dry	Ponded, No FS	Ponded, No FS	Dry	Dry	Ponded, No FS	Ponded, No FS	Ponded, No FS	OB	BRLI	BRLI	Dry	Dry	Dry	Dry	Ponded, No FS	BR Immature	Dry	Dry	Dry
D	Dry	Dry	Dry	Dry	Dry	Dry	Ponded, No FS	Ponded, No FS	Dry	Dry	Ponded, No FS	Ponded, No FS	Ponded, No FS	OB		BRLI	BRLI	BRLI	BRLI	Dry	Ponded, No FS	BR Immature	Dry	Dry	Dry
E	Dry	Dry	Dry	Dry	Dry	Dry	Ponded, No FS	Dry	Dry	Dry	Ponded, No FS	Ponded, No FS	Dry	Ponded, No FS		Ponded, No FS	Ponded, No FS	BRLI	BRLI	BRLI	Ponded, No FS	Ponded, No FS	Ponded, No FS	Ponded, No FS	Dry

Rain Date	Rain Amount	Survey Date	Criteria Features Present?	Surveyed Features	Shrimp Present?	Estimated Numbers	Comment
10/11/2022	0.03						
		10/12/2022	no		no		
10/15/2022	0.17						
		10/16/2022	yes	Main Pool 1	no		
		10/23/2022	yes	Main Pool 1	no		
		10/30/2022	yes	Main Pool 1	no		
11/2/2022	0.05						
11/5/2022	0.05						
		11/6/2022	yes	Main Pool 1	no		
11/8/2022	0.98						
11/9/2022	0.22						
		11/13/2022	yes	Main Pool 1, Main Pool 2, 11	yes - too small to ID (Feature Main Pool 1)	1,000	11/14/22 survey approved by FWS
		11/17/2022	yes	Main Pool 1, Main Pool 2, 11	yes - too small to ID (Feature Main Pool 1)	500	
		11/24/2022	yes	Main Pool 1, Main Pool 2, 11	Yes-collected (Feature Main Pool 1)	100	Identified on 12/02/2022 as BRLI
		11/30/2022	yes	Main Pool 1, Main Pool 2, 11	Yes - few (Feature Main Pool 1)	10	BRLI
12/2/2022	0.01						
12/4/2022	0.04						
12/5/2022	T						
12/6/2022	T						
		12/7/2022	yes	Main Pool 1, Main Pool 2, 11	Yes - few (Feature Main Pool 1)	10	BRLI
12/11/2022	0.48						
12/12/2022	0.32						

		12/14/2022	yes	Main Pool 1, Main Pool 2, 11, 16, 19	no		
		12/21/2022	yes	Main Pool 1, Main Pool 2, 11, 16, 19	no		
12/27/2022	0.35						
12/28/2022	0.06						
12/29/2022	T	12/29/2022	yes	Main Pool 1, Main Pool 2, 11, 16, 17, 19	no		
12/30/2022	0.01						
12/31/2022	0.75						
1/1/2023	0.2						
1/2/2023	0.04						
1/3/2023	0.08						
1/4/2023	0.03	1/4/2023	yes	Main Pool 1, Main Pool 2, 11, 12, 14, 16, 17, 18, 19	no		
1/5/2023	0.42						
1/9/2023	T						
1/10/2023	0.23						
		1/11/2023	yes	Main Pool 1, Main Pool 2, 11, 12, 14, 16, 17, 18, 19	no		
1/14/2023	1.12						
1/15/2023	0.59						
1/16/2023	0.31						
1/17/2023	T						
1/19/2023	T	1/19/2023	yes	Main Pool 1, Main Pool 2, 11, 16, 17, 19	no		
1/28/2023	T						
1/29/2023	0.03						
1/30/2023	0.04						
		2/1/2023	yes	Main Pool 1, Main Pool 2, 11, 16, 19	no		

2/5/2023	T	2/5/2023	yes	Main Pool 1, Main Pool 2, 11, 19	no		
2/12/2023		2/12/2023	yes	Main Pool 1, Main Pool 2	no		Features 1 & 2 meet 120 criteria
2/13/2023	T						
2/14/2023	0.22						
		2/19/2023		Main Pool 1, Main Pool 2, 11, 16, 19	no		
2/21/2023	T						
2/22/2023	0.01						
2/23/2023	0.29						
2/24/2023	0.09						
2/25/2023	1.21						
2/26/2023	0.06	2/26/2023		Main Pool 1, Main Pool 2, 11, 16, 19	no		
2/27/2023	0.03						
2/28/2023	0.04						
3/1/2023	0.04						
3/5/2023	T	3/5/2023		Main Pool 1, Main Pool 2, 11, 19	no		
3/6/2023	0.03						
3/10/2023	0.59						
3/11/2023	0.08						
		3/12/2023		Main Pool 1, Main Pool 2, 3b, 4, 5, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19	no		
3/14/2023	0.7						
3/15/2023	0.71						
3/16/2023	0.01						
3/19/2023	0.01	3/19/2023		Main Pool 1, Pain Pool 2, 1, 2, 3a, 3b, 4,	no		

				5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19			
3/20/2023	T						
3/21/2023	1.08						
3/22/2023	0.43						
		3/26/2023		Main Pool 1, Pain Pool 2, 1, 2, 3a, 3b, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19	no		
3/29/2023	0.35						
3/30/2023	0.22						
		4/2/2023		Main Pool 1, Pain Pool 2, 1, 2, 3a, 3b, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19	no		
		4/9/2023		Main Pool 1, Pain Pool 2, 1, 2, 3a, 3b, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19	no		
4/12/2023	0.02						
4/13/2023	0.02						
4/14/2023	T						
		4/16/2023		Main Pool 1, Main Pool 2, 5, 11, 12, 14, 15, 16, 17, 18, 19	no		
		4/23/2023		Main Pool 1, Main	no		

				Pool 2, 11, 16, 17, 19			
		4/30/2023		Main Pool 1, Main Pool 2, 11, 19	no		
5/1/2023	0.02						
5/2/2023	T						
5/4/2023	0.44						
5/5/2023	0.01						
		5/7/2023		Main Pool 1, Main Pool 2	no		
5/9/2023	T						
		5/14/2023		0			
		5/21/2023		0			
5/28/2023	T	5/28/2023		0			
		6/4/2023		0			
6/7/2023	T						
6/11/2023	0.02	6/11/2023		0			
7/31/2023	0.03						
8/1/2023	T	8/1/2023		0			
8/9/2023	T						
8/10/2023	0.03						
		8/11/2023		0			
8/16/2023	T						
8/20/2023	1.83						
8/21/2023	0.13						
		8/22/2023		Main Pool 1, Main Pool 2, 11, 16, 19	no		
		8/29/2023		Main Pool 1, Main Pool 2	no		
9/1/2023	0.28						
9/2/2023	T						
9/3/2023	T						
		9/4/2023		Main Pool 1	no		
9/10/2023	0.03						
9/11/2023	T						
		9/12/2023		Main Pool 1	no		

		9/19/2023		Main Pool 1	no		
9/30/2023	T						
10/1/2023	T						
10/11/2023	0.01						
		10/12/2023		Main Pool 1	no		
10/25/2023	T						

Attachment C

USFWS Wet Season Data Sheets

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods																				
Site or Project Name: Double Butte				County: Riv				Quad: Romoland				Township: T5S			Range: R3W			Section: 14		
SURVEYOR / Permit Number: Brock Ortega (TE813545-09) (Project Number 13985.25.1)																				
Date:11/19/23		Time:0700		Weather Conditions: 100% cloudy, 60F, 0-5 mph																
Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information	
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae				
Main 1	Wet	60F	63F	15	30	30x40	30x50	---	----	-x	x	---	---	----	---	---	---	---	D,T, CP	
Main 2	Wet	60F	62F	10	30	10x25	15x30	----	---	---	---	---	---	---	---	---	---			
Off-site A	Wet	60F	63F	6	12		4x15	---	---	---	---	---	---	---	---	---	---	D,TT		
Off-site B	Wet	60F	63F	6	14		7x15	---	---	---	---	---	---	---	---	---	---	D,TT		

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods																					
Site or Project Name: Double Butte				County: Riv				Quad: Romoland				Township: T5S				Range: R3W				Section: 14	
SURVEYOR / Permit Number: Brock Ortega (TE813545-09) (Project Number 13985.25.1)																					
Date:11/26/23		Time:1030		Weather Conditions: 100% cloudy, 50F, 0-3 mph																	
Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information		
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae					
Main 1	Wet	50F	55F	15	30	30x40	30x50	---	----	x	x	---	---	x	x	---	---	D,T,CP			
Main 2	Wet	50F	55F	10	30	10x25	15x50	---	---	x	x	---	---	x	x	---	---	D,T,CP			
Off-site A	Wet	50F	56F	3	12		4x15	---	---	---	---	---	---	---	---	---	---	D,TT			
Off-site B	Wet	50F	56F	3	14		7x15	---	---	---	---	---	---	---	---	---	---	D,TT			
Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = <i>Linderiella occidentalis</i>, BRLI = <i>Branchinecta lindahli</i>). For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present. (Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.																					

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods																			
Site or Project Name: Double Butte					County: Riv			Quad: Romoland			Township: T5S			Range: R3W			Section: 14		
SURVEYOR / Permit Number: Brock Ortega (TE813545-09) (Project Number 13985.25.1)																			
Date:12/3/23		Time: 1045		Weather Conditions: 100% cloudy, 55F, 5-10 mph															
Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
Main 1	Wet	55F	57F	5	30	8x15	30x50	---	----	---	x	x	---	x	---	---	---	D,T, CP	
Main 2	Dry				30		15x50	---	---	---	---	---	---	---	---	---	---	D,T,CP	
Off-site A	Dry				12		4x15	---	---	---	---	---	---	---	---	---	---	D,TT	
Off-site B	Dry				14		7x15	---	---	---	---	---	---	---	---	---	---	D,TT	
Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = <i>Lindleriella occidentalis</i>, BRLI = <i>Branchinecta lindahl</i>). For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present. (Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.																			

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods																					
Site or Project Name: Double Butte				County: Riv				Quad: Romoland				Township: T5S				Range: R3W				Section: 14	
SURVEYOR / Permit Number: Brock Ortega (TE813545-09) (Project Number 13985.25.1)																					
Date:12/10/23		Time:1100		Weather Conditions: 100% cloudy, 55F, 0-5 mph																	
Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information		
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae					
Main 1	Dry				30		30x50	---	---	---	---	---	---	---	---	---	---	D,T<CP			
Main 2	Dry				30		15x50	---	---	---	---	---	---	---	---	---	---	D,T,CP			
Off-site A	Dry				12		4x15	---	---	---	---	---	---	---	---	---	---	D,TT			
Off-site B	Dry				14		7x15	---	---	---	---	---	---	---	---	---	---	D,TT			
Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = <i>Lindieriella occidentalis</i>, BRLI = <i>Branchinecta lindahl</i>). For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present. (Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.																					

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods																					
Site or Project Name: Double Butte				County: Riv				Quad: Romoland				Township: T5S				Range: R3W				Section: 14	
SURVEYOR / Permit Number: Brock Ortega (TE813545-09) (Project Number 13985.25.1)																					
Date:12/17/23		Time:1110		Weather Conditions: 100% cloudy, 60F, 0-7 mph																	
Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information		
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae					
Main 1	Dry				30		30x50	---	---	---	---	---	---	---	---	---	---	D,T,CP			
Main 2	Dry				30		15x50	---	---	---	---	---	---	---	---	---	---	D,T,CP			
Off-site A	Dry				12		4x15	---	---	---	---	---	---	---	---	---	---	D,TT			
Off-site B	Dry				14		7x15	---	---	---	---	---	---	---	---	---	---	D,TT			
Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = <i>Lindieriella occidentalis</i> , BRLI = <i>Branchinecta lindahl</i>). For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present. (Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.																					

[illegible]

13	Dry				10		6x12											D,P	
14	Wet	55F	55F	10	10	9x16	9x16	---	---	---	---	---	---	---	---	---	---	D,P	
15	Dry				6		6x8											D,P	
16	Wet	55F	54F	15	15	6x12	6x12	---	---	---	---	---	---	---	---	---	---	D,P	
17	Wet	55F	53F	12	12	10x28	10x28	---	---	---	---	---	---	---	---	---	---	D,P,T	
18	Wet	55F	53F	8	8	3x10	3x10	---	---	---	---	---	---	---	---	---	---	D	
19	Dry				8		6x8											D	
Off-site A	Wet	55F	55F	12	12	4x15	4x15	---	---	---	---	---	---	---	---	---	---	D,TT	
Off-site B	Wet	55F	55F	14	14	7x15	7x15	---	---	---	---	---	---	---	---	---	---	D,TT	
Off-site C	Wet	55F	52F	30	30	30-80	30-80	---	---	---	---	---	---	---	---	---	---	D,T	
Off-site D	Wet	55F	53F	30	30	7x40	7x40	---	---	---	---	---	---	---	---	---	---	D,CP	
Off-site E	Wet	55F	53F	30	30	7x18	7x18	---	---	---	---	---	---	---	---	---	---	D,T,CP	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Lindleriella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Site or Project Name: Double Butte

County: Riv

Quad: Romoland

Township: T5S

Range: R3W

Section: 14

SURVEYOR / Permit Number: Brock Ortega (TE813545-09) (Project Number 13985.25.1)

Date:12/31/23

Time:1020

Weather Conditions: 100% cloudy, 53F, 3-10 mph
--

[illegible]

13	Dry				10		6x12											D,P	
14	Dry				10		9x16	---	---	---	---	---	---	---	---	---	---	D,P	
15	Dry				6		6x8											D,P	
16	Dry				15		6x12	---	---	---	---	---	---	---	---	---	---	D,P	
17	Dry				12		10x28	---	---	---	---	---	---	---	---	---	---	D,P,T	
18	Dry				8		3x10	---	---	---	---	---	---	---	---	---	---	D	
19	Dry				8		6x8											D	
Off-site A	Wet	53F	56F	12	12	2x13	4x15	---	---	---	---	---	---	---	---	---	---	D,TT	
Off-site B	Wet	53F	56F	14	14	3x10	7x15	---	---	---	---	---	---	---	---	---	---	D,TT	
Off-site C	Wet	53F	55F	30	30	20-60	30-80	---	---	---	---	---	---	---	---	---	---	D,T	
Off-site D	Wet	53F	55F	30	30	4x35	7x40	---	---	---	---	---	---	---	---	---	---	D,CP	
Off-site E	Dry				30		7x18	---	---	---	---	---	---	---	---	---	---	D,T,CP	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Lindleriella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Site or Project Name: Double Butte

County: Riv

Quad: Romoland

Township: T5S

Range: R3W

Section: 14

SURVEYOR / Permit Number: Brock Ortega (TE813545-09) (Project Number 13985.25.1)

Date:1/7/24

Time:1330

Weather Conditions: 0% cloudy, 48F, 0-5 mph

[illegible]

13	Dry				10		6x12											D,P	
14	Dry				10		9x16											D,P	
15	Dry				6		6x8											D,P	
16	Dry				15		6x12											D,P	
17	Dry				12		10x28											D,P,T	
18	Dry				8		3x10											D	
19	Dry				8		6x8											D	
Off-site A	Wet	48F	53F	12	12	2x13	4x15	---	---	x	x	---	x	---	x	---	---	D,TT	
Off-site B	Wet	48F	53F	14	14	3x10	7x15	---	---	x	x	---	x	---	x	---	---	D,TT	
Off-site C	Dry				30		30-80											D,T	
Off-site D	Dry				30		7x40											D,CP	
Off-site E	Dry				30		7x18											D,T,CP	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Site or Project Name: Double Butte	County: Riv	Quad: Romoland	Township: T5S	Range: R3W	Section: 14
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Quad: Romoland

Range: R3W

SURVEYOR / Permit Number: Brock Ortega (TE813545-09) (Project Number 13985.25.1)

Weather Conditions: 50% cloudy, 50F, 0-5 mph

[illegible]

13	Dry				10	6x12											D,P	
14	Dry				10	9x16											D,P	
15	Dry				6	6x8											D,P	
16	Dry				15	6x12											D,P	
17	Dry				12	10x28											D,P,T	
18	Dry				8	3x10											D	
19	Dry				8	6x8											D	
Off-site A	Dry				12	4x15											D,TT	
Off-site B	Dry				14	7x15											D,TT	
Off-site C	Dry				30	30-80											D,T	
Off-site D	Dry				30	7x40											D,CP	
Off-site E	Dry				30	7x18											D,T,CP	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Lindleriella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

[illegible]

13	Wet	55F	53F	10	10	6x12	6x12	---	---	---	---	---	---	---	---	---	---	D,P	
14	Wet	55F	54F	10	10	9x16	9x16	---	---	---	---	---	---	---	---	---	---	D,P	
15	Wet	55F	55F	6	6	6x8	6x8	---	---	---	---	---	---	---	---	---	---	D,P	
16	Wet	55F	53F	15	15	6x12	6x12	---	---	---	---	---	---	---	---	---	---	D,P	
17	Wet	55F	54F	12	12	10x28	10x28	---	---	---	---	---	---	---	---	---	---	D,P,T	
18	Wet	55F	54F	8	8	3x10	3x10	---	---	---	---	---	---	---	---	---	---	D	
19	Wet	55F	54F	8	8	6x8	6x8	---	---	---	---	---	---	---	---	---	---	D	
Off-site A	Wet	55F	54F	12	12	4x15	4x15	---	---	---	---	---	---	---	---	---	---	D,TT	
Off-site B	Wet	55F	54F	14	14	7x15	7x15	---	---	---	---	---	---	---	---	---	---	D,TT	
Off-site C	Wet	55F	53F	30	30	30-80	30-80	---	---	---	---	---	---	---	---	---	---	D,T	
Off-site D	Wet	55F	53F	30	30	7x40	7x40	---	---	---	---	---	---	---	---	---	---	D,CP	
Off-site E	Wet	55F	53F	30	30	7x18	7x18	---	---	---	---	---	---	---	---	---	---	D,T,CP	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Lindleriella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

[illegible]

13	Dry				10		6x12	---	---	---	---	---	---	---	---	---	---	D,P	
14	Dry				10		9x16	---	---	---	---	---	---	---	---	---	---	D,P	
15	Dry				6		6x8	---	---	---	---	---	---	---	---	---	---	D,P	
16	Dry				15		6x12	---	---	---	---	---	---	---	---	---	---	D,P	
17	Dry				12		10x28	---	---	---	---	---	---	---	---	---	---	D,P,T	
18	Dry				8		3x10	---	---	---	---	---	---	---	---	---	---	D	
19	Dry				8		6x8	---	---	---	---	---	---	---	---	---	---	D	
Off-site A	Wet	75F	65F	10	12	3x10	4x15	---	---	x	x	---	x	---	x	---	---	D,TT	
Off-site B	Wet	75F	65F	10	14	6x10	7x15	---	---	x	x	---	x	---	x	---	---	D,TT	
Off-site C	Wet	75F	65F	25	30	25x60	30-80	---	---	x	x	---	x	---	x	---	---	D,T	
Off-site D	Wet	75F	65F	25	30	6x35	7x40	---	---	x	x	---	x	---	x	---	---	D,CP	
Off-site E	Wet	75F	64F	23	30	5x12	7x18	---	---	x	x	---	x	---	x	---	---	D,T,CP	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Site or Project Name: Double Butte

County: Riv

Quad: Romoland

Township: T5S

Range: R3W

Section: 14

SURVEYOR / Permit Number: Brock Ortega (TE813545-09) (Project Number 13985.25.1)

Date:2/4/24

Time:1230

Weather Conditions: 100% cloudy, 55F, 3-5 mph

[illegible]

13	Dry				10		6x12	---	---	---	---	---	---	---	---	---	---	D,P	
14	Dry				10		9x16	---	---	---	---	---	---	---	---	---	---	D,P	
15	Dry				6		6x8	---	---	---	---	---	---	---	---	---	---	D,P	
16	Dry				15		6x12	---	---	---	---	---	---	---	---	---	---	D,P	
17	Dry				12		10x28	---	---	---	---	---	---	---	---	---	---	D,P,T	
18	Dry				8		3x10	---	---	---	---	---	---	---	---	---	---	D	
19	Dry				8		6x8	---	---	---	---	---	---	---	---	---	---	D	
Off-site A	Wet	55F	57F	4	12	1x5	4x15	---	---	x	x	---	x	---	x	---	---	D,TT	Too small to ID
Off-site B	Wet	55F	57F	4	14	2x5	7x15	---	---	x	x	---	x	---	x	---	---	D,TT	Too small to ID
Off-site C	Wet	55F	58F	15	30	10x20	30-80	---	---	x	x	---	x	---	x	---	---	D,T	
Off-site D	Wet	55F	58F	8	30	3x15	7x40	---	---	x	x	---	x	---	x	---	---	D,CP	
Off-site E	Dry				30		7x18	---	---	x	x	---	x	---	x	---	---	D,T,CP	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

[illegible]

13	Wet	51F	50F	10	10	6x12	6x12	---	---	---	---	---	---	---	---	---	---	D,P	
14	Wet	51F	50F	10	10	9x16	9x16	---	---	---	---	---	---	---	---	---	---	D,P	
15	Wet	51F	51F	6	6	6x8	6x8	---	---	---	---	---	---	---	---	---	---	D,P	
16	Wet	51F	50F	15	15	6x12	6x12	---	---	---	---	---	---	---	---	---	---	D,P	
17	Wet	51F	50F	12	12	10x28	10x28	---	---	---	---	---	---	---	---	---	---	D,P,T	
18	Wet	51F	50F	8	8	3x10	3x10	---	---	---	---	---	---	---	---	---	---	D	
19	Wet	51F	50F	8	8	6x8	6x8	---	---	---	---	---	---	---	---	---	---	D	
Off-site A	Wet	51F	50F	12	12	4x15	4x15	---	---	---	---	---	---	---	---	---	---	D,TT	Too small to ID
Off-site B	Wet	51F	50F	14	14	7x15	7x15	---	---	---	---	---	---	---	---	---	---	D,TT	Too small to ID
Off-site C	Wet	51F	50F	30	30	30-80	30-80	---	---	---	---	---	---	---	---	---	---	D,T	Too small to ID
Off-site D	Wet	51F	50F	30	30	7x40	7x40	---	---	---	---	---	---	---	---	---	---	D,CP	Too small to ID
Off-site E	Wet	51F	50F	30	30	7x18	7x18	---	---	---	---	---	---	---	---	---	---	D,T,CP	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Double Butte County: Riverside Quad: Romoland Township: T5S Range: R3W Section: 14

SURVEYOR / Permit Number: Kevin Livergood (TE-172638-3)

Date: 2/19/24 Time: 0900 Weather Conditions: 53°F, 2-4 mph, 100% cc

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			Last Rainfall 2/11/24: 4.7"
Main 1	veg	11.7	15.1	20-25	~35-40	22x35	30x53	BRLI	-	-	X	X	-	X	X	-	-	D,T	25/M ² Algal bloom
Main 2	veg	11.7	14.9	20	~40	8x25	16x60	BRLI	-	X	-	X	-	-	X	-	-	D,T	105/M ² Algae. 2 cohorts
1		11.7	-	-		-		-										D,T	Dry
2		11.7	-	-		-		-										D,T	Dry
3a	unveg.	11.7	-	-		-		-										D	Dry
3b	crushed asphalt	11.7	-	-		-		-										D	Dry
4	substrate	12.8	-	-		-		-										D,P	Dry
5		12.8	-	-		-		-										D,P	Dry
6	veg	12.8	-	-		-		-										D,P	Bromes, RS f. larvae, mustard
7		12.8	-	-		-		-										D,P	Dry
8		13.9	-	-		-		-										D,P	Dry
9		13.9	-	-		-		-										D,P	Dry
10		13.9	-	-		-		-										D,P	Dry
11		13.9	-	-		-		-										D,P	Dry

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

CA chorus frog
Bl. tailed jackrabbit

W. Meadowlark
Am. crow
K. deer (pair)
C. Kingbird
H. Finch

Y.B. warbler
Anna's Humm.
Mourning dove
Bushtit.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Double Butte	County: Riverside	Quad: Romoland	Township: T5S	Range: R3W	Section: 14
SURVEYOR / Permit Number: Kevin Livergood (TE-172638-3)					

Date:	Time:	Weather Conditions:																	
Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
12		13.9	—	—		—		—										D	Dry
13		13.9	—	—		—		—										D	Dry
14		13.9	—	—		—		—										D	Dry
15		13.9	—	—		—		—										D	Dry
16		13.9	—	—		—		—										D	Dry
17		13.9	—	—		—		—										D	Dry
18		13.9	—	—		—		—										D	Dry
19		13.9	—	—		—		—										D, TT, disc	Dry
(new) 20	RR	13.9	16.1	8	12-15	2.5 x 9	3 x 22	BRLI	—	—	—	—	—	—	—	—	—	D, TT, disc	Bromes
off-site																			
a		13.9	17.1	10	15	3 x 4	5 x 6	BRLI	—	—	—	—	—	—	—	—	—	D, TT	25/m ²
b		13.9	17.2	10	15	2 x 18	3 x 20	BRLI	—	—	—	—	—	X	—	—	—	D, TT	10s/m ² Algae, Turbid
c-Pond	Beyond Limits	13.9	15.4	35-40	45+			BRLI	—	—	—	—	—	—	—	—	—		

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Lindieriella occidentalis*, BRLI = *Branchinecta lindahli*).
 For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed
 by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
 (Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods																			
Site or Project Name: Double Butte				County: Riverside				Quad: Romoland				Township: T5S		Range: R3W		Section: 14			
SURVEYOR / Permit Number: Kevin Livergood (TE-172638-3)																			
Date: 2/26/24		Time: 0830		Weather Conditions: 53°F, 0-1 mph, 100% cc														Page 1 of 3	
Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
Main 1		11.7	14.2	28	35-40	30 x 45	35 x 50	-	-	X	-	X	-	X	X	-	-	D, T, P	No FS
Main 2		11.7	14.3	25	35-40	18 x 57	20 x 60	BRLI	-	X	-	X	-	-	X	-	-	D, T, P	5/M ²
1		12.8	-	-		-		-	-	-	-	-	-	-	-	-	-	D, TT	Dry
2		12.8	-	-		-		-	-	-	-	-	-	-	-	-	-	D, TT	Dry
3b		11.7	13.7	2.5	6-8	4 x 8	6 x 10	-	-	X	-	X	-	-	X	-	-	D, P	Dry
3a		12.8	-	-				-	-	-	-	-	-	-	-	-	-	D, P	Dry
4		12.8	-	-				-	-	-	-	-	-	-	-	-	-	D, P	Dry
5		12.8	-	-				-	-	-	-	-	-	-	-	-	-	D, P	Dry
6		15.6	-	-				-	-	-	-	-	-	-	-	-	-	D, P	Dry
7		15.6	-	-				-	-	-	-	-	-	-	-	-	-	D, P	Dry
8		12.8	14.9	5	8	2 x 2	4 x 4	-	-	-	-	-	-	-	-	-	-	D, P, TT	No FS
9		12.8	14.7	2.5	6	2.5 x 5.0	6 x 8	-	-	X	-	X	-	-	-	-	-	D, P	No FS
10		12.8	-	-		-		-	-	-	-	-	-	-	-	-	-	D, P, T	Dry
11		13.9	14.4	7.5	10	6 x 8	8 x 12	-	-	-	-	-	-	-	-	-	-	D, P	No FS

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Lindieriella occidentalis*, BRLI = *Branchinecta lindahl*).
 For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
 (Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Double Butte County: Riverside Quad: Romoland Township: T5S Range: R3W Section: 14

SURVEYOR / Permit Number: Kevin Livergood (TE-172638-3)

Date: 2/26/24 Time: 0830 Weather Conditions:

Page 2 of 3

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
12		13.9	14.4	8	10	10x13	15x15	-	-	-	-	-	-	-	-	-	-	D, TT	No FS
13		13.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	D, TT, T	Dry
14		13.9	14.6	8	10	6x13	8x15	-	-	-	-	-	-	-	-	-	-	D, P	No FS
15		13.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	D, TT, P	Dry
16		13.9	15.3	2-5	10	3x6	5x9	-	-	-	-	-	-	-	-	-	-	D, T	No FS
17		13.9	15.0	7-8	10-12	8x24	16x30	-	-	-	-	-	-	-	-	-	-	D, P	No FS
18		15.6	15.4	2	5	1.5x2	6x6	-	-	-	-	-	-	-	-	-	-	D, P	No FS
19		15.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	D, P	Dry
20	out of Bounds	X	X	1														1	out of Bounds
21	skipped #																	1	skipped #
22		15.6	14.6	10	15	3x10	4x14	BRLI	-	-	-	X	-	-	-	-	-	D, TT	New RR
23		15.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	D, TT	New RR
24		15.6	15.1	10	15	16x18	21x50	BRLI	-	-	-	X	-	-	-	-	-	D, TT	New RR
25		15.6	15.1	<2	8	15x5	3x5	-	-	-	-	-	-	-	-	-	-	D, TT	New RR

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Lindieriella occidentalis*, BRLI = *Branchinecta lindahl*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Double Butte County: Riverside Quad: Romoland Township: T5S Range: R3W Section: 14

SURVEYOR / Permit Number: Kevin Livergood (TE-172638-3)

Date: 2/26/24 Time: 0830 Weather Conditions:

Page 3 of 3

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
OFF- SITE																			
A		16.1	16.7	10	20	4x6	5x8	BRLI	-	-	-	-	-	-	-	-	-	D, TT	RR-Turbid, no veg
B		16.1	16.5	10	20	3x18	4x20	BRLI	-	-	-	-	-	-	-	-	-	D, TT	RR-Turbid, no veg.
C		16.1	16.1	35-40	45+	6x12	16x16 +05	BRLI	-	X	-	X	-	X	X	-	-	D, T	Vegetated
D-shoring		16.1	15.9	15	20+	2x20	3x30	BRLI	-	-	-	-	-	-	-	-	-	CP	site drainage
E		16.1	15.8	30	40+	3x16	3x20+	-	-	-	-	X	-	-	-	-	-	CP	site drainage

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahl*). For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present. (Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Double Butte County: Riverside Quad: Romoland Township: T5S Range: R3W Section: 14

SURVEYOR / Permit Number: Kevin Livergood (TE-172638-3)

Date: 3/4/24 Time: 0815 Weather Conditions: 50°F, 1-2 mph, 30% cc

1 of 3

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
Main 1		10	12.0	20-25	35-40	25x40	35x50	-	-	-	X	X	-	X	X	-	-	D, T	No FS
Main 2		10	12.0	20	35-40	25x35	30x60	-	-	-	X	X	-	X	X	-	-	D, T	No FS
1		10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	D	Dry
2		10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	D	Dry
3a		10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	D	Dry
3b		10	-	-	6-8	-	6x10	-	-	-	-	-	-	-	-	-	-	D	Dry
4		10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	D	Dry
5		10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	D	Dry
6		10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	D	Dry
7		10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	D	Dry
8		11.1	-	-	8	-	4x4	-	-	-	-	-	-	-	-	-	-	D	Dry
9		11.1	-	-	6	-	6x8	-	-	-	-	-	-	-	-	-	-	D	Dry
10		11.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	D	Dry
11		11.1	16.5	42	10	1x1	8x12	-	-	-	X	-	-	-	X	-	-	D	No FS

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Lindieriella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Double Butte County: Riverside Quad: Romoland Township: T5S Range: R3W Section: 14
 SURVEYOR / Permit Number: Kevin Livergood (TE-172638-3)

Date: Time: Weather Conditions: 2 of 3

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
12		10	-	-		-		-	-	-	-	-	-	-	-	-	-	D	Dry
13		10	-	-		-		-	-	-	-	-	-	-	-	-	-	D	Dry
14		10	-	-		-		-	-	-	-	-	-	-	-	-	-	D	Dry
15		11.1	-	-		-		-	-	-	-	-	-	-	-	-	-	D	Dry
16		11.1	-	-		-		-	-	-	-	-	-	-	-	-	-	D	Dry
17		11.1	-	-		-		-	-	-	-	-	-	-	-	-	-	D	Dry
18		10	-	-		-		-	-	-	-	-	-	-	-	-	-	D	Dry
19		10	-	-		-		-	-	-	-	-	-	-	-	-	-	D	Dry
20	Out of Bounds	1																	
21	Skipped #	1																	
22	RR	10	11.9	8	15	15x7	4x14	-	-	-	-	-	-	-	-	-	-	RR, D, TT	
23	RR	10	-	-		-		-	-	-	-	-	-	-	-	-	-	D, TT, RR	Dry
24	RE	11.1	14.0	10	15	12x14	21x50	-	-	-	-	-	-	-	-	-	-	D, TT, RR	Tadpoles
25	RR	11.1	-	-	8	-	3x5	-	-	-	-	-	-	-	-	-	-	D, TT, RR	Dry

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Lindieriella occidentalis*, BRLI = *Branchinecta lindahli*).
 For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
 (Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Double Butte

County: Riverside

Quad: Romoland

Township: T5S

Range: R3W

Section: 14

SURVEYOR / Permit Number:Kevin Livergood (TE-172638-3)

Date: 3/4/24

Time:

Weather Conditions:

3 of 3

[illegible]

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahl*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

xx Portions of pool in the off-site area has dried.
Rest of pool is populated by *Cladocera*, *D. Culicidae*, and Tadpoles } abundant

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods																					
Site or Project Name: Double Butte				County: Riverside				Quad: Romoland				Township: T5S				Range: R3W				Section: 14	
SURVEYOR / Permit Number: Kevin Livergood (TE-172638-3)																					
Date: 3/11/24				Time: 0900				Weather Conditions: 49°F, 0-1mph, 75%cc													
Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information		
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae					
Main 1		11.1	14.4	30	35-40	32x48	35x50	-	-	-	-	X	-	X	X	-	-	D, T			
Main 2		11.1	13.8	23	35-40	20x60	30x60	-	-	-	-	X	-	-	X	-	-	D, T	Tadpoles		
1		11.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		Dry		
2		11.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		Dry		
3a		11.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		Dry		
3b		11.1	15.1	2.5	5	5x7.5	7x9	-	-	-	-	-	-	-	-	-	-	D, TT, P			
4		11.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	D, TT	Dry		
5		11.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	D, TT	Dry		
6		11.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	D	Dry		
7		11.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		Dry		
8		11.1	21.3	5	6	1.5x1.5	2x2	-	-	-	-	-	-	-	-	-	-	D			
9		11.1	21.2	5	6-8	4x4	6x6	-	-	-	-	-	-	-	-	-	-	D, P			
10		11.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	D, T	Dry		
11		11.1	19.8	7	9	6x8	8x12	-	-	-	-	-	-	-	-	-	-	D, T			

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Lindnerella occidentalis*, BRLL = *Branchinecta lindahli*).
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed
by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Double Butte County: Riverside Quad: Romoland Township: T5S Range: R3W Section: 14

SURVEYOR / Permit Number: Kevin Livergood (TE-172638-3)

Date: 3/11/24 Time: Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Playhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
12		11.1	21.3	10	12	12x15	14x20	-	-	-	-	-	-	-	-	-	-	D, P	
13		11.1	-	-	8-10	-	6x10	-	-	-	-	-	-	-	-	-	-	D, TT	Dry
14		11.1	21.1	6	8-10	2x14	9x16	-	-	-	-	-	-	-	-	-	-	D, P	
15		11.1	-	-	5-6	-	6x8	-	-	-	-	-	-	-	-	-	-	D, P	Dry
16		11.1	18.6	4	10	3x9	6x12	-	-	-	-	-	-	-	-	-	-	D, T, P	
17		11.1	18.4	8	12	6x25	10x28	-	-	-	-	-	-	-	-	-	-	D, P	
18		11.1	22.3	42	5	1x1	3.5x4	-	-	-	-	-	-	-	-	-	-	D, P	
19		11.1	-	-	5-6	-	3x7	-	-	-	-	-	-	-	-	-	-	D, P	Dry
20	OB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
21	skipped #	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
22		11.1	12.2	10	12	3x14	4x16	-	-	-	-	X	-	-	-	-	-	D, TT	
23		11.1	-	-	-	-	1x16	-	-	-	-	-	-	-	-	-	-	D, TT	Dry
24		11.1	21.0	8	10-15	18x35	20x40	(1-5/11) BRLL	-	-	-	X	-	X	X	-	-	D, TT	Tadpoles
25		11.1	22.6	5	10	2x2	4x4	-	-	-	-	-	-	-	-	-	-	D, TT	Algal Bloom

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLL = *Branchinecta lindahl*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Double Butte	County: Riverside	Quad: Romoland	Township: T5S	Range: R3W	Section: 14
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Site or Project Name: Double Butte	County: Riverside	Quad: Romoland	Township: T5S	Range: R3W	Section: 14
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Site or Project Name: Double Butte	County: Riverside	Quad: Romoland	Township: T5S	Range: R3W	Section: 14
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Site or Project Name: Double Butte	County: Riverside	Quad: Romoland	Township: T5S	Range: R3W	Section: 14
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Site or Project Name: Double Butte	County: Riverside	Quad: Romoland	Township: T5S	Range: R3W	Section: 14
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Site or Project Name: Double Butte	County: Riverside	Quad: Romoland	Township: T5S	Range: R3W	Section: 14
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SURVEYOR / Permit Number:Kevin Livergood (TE-172638-3)

Date: 3/11/24	Time:	Weather Conditions:
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Date: 3/11/24	Time:	Weather Conditions:
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Date: 3/11/24	Time:	Weather Conditions:
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Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods																					
Site or Project Name: Double Butte				County: Riverside				Quad: Romoland				Township: T5S				Range: R3W				Section: 14	
SURVEYOR / Permit Number: Kevin Livergood (TE-172638-3)																					
Date: 2/18/24		Time: 0900		Weather Conditions: 52°F 2-4 mph, 5% cc																Page 1 of 3	
Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects					Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information	
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae					
Main 1		13.9	13.7	30	35-40	25 x 40	35 x 50	-	-	X	-	X	-	X	X	-	-	D, T			
Main 2		13.9	13.8	18-20	35-40	MAX 25 x 50 -5-8	30 x 60	-	-	-	-	X	-	X	X	-	-	D, T			
1	Dry	13.9	-	-		-		-	-	-	-	-	-	-	-	-	-	D, P	Dry		
2	Dry	13.9	-	-		-		-	-	-	-	-	-	-	-	-	-	D, P	Dry		
3 a/b	Dry	13.9	-	-	5	-	7x9	-	-	-	-	-	-	-	-	-	-	D, P	Dry		
4	Dry	13.9	-	-		-		-	-	-	-	-	-	-	-	-	-	D, P	Dry		
5	Dry	13.9	-	-		-		-	-	-	-	-	-	-	-	-	-	D, P	Dry		
6	Dry	13.9	-	-		-		-	-	-	-	-	-	-	-	-	-	D, P	Dry		
7	Dry	13.9	-	-		-		-	-	-	-	-	-	-	-	-	-	D, P	Dry		
8	Dry	13.9	-	-	6	-	2x2	-	-	-	-	-	-	-	-	-	-	D, P	Dry		
9	Dry	13.9	-	-	6-8	-	6x6	-	-	-	-	-	-	-	-	-	-	D, P	Dry		
10	Dry	13.9	-	-		-		-	-	-	-	-	-	-	-	-	-	D, P	Dry		
11	Dry	13.9	-	-	9	-	8x12	-	-	-	-	-	-	-	-	-	-	D, P	Dry		
12	Dry	13.9	-	-	12	-	14x20	-	-	-	-	-	-	-	-	-	-	D, P	Dry		

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Lindleriella occidentalis*, BRLL = *Branchinecta lindahli*).
 For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
 (Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Double Butte County: Riverside Quad: Romoland Township: T5S Range: R3W Section: 14

SURVEYOR / Permit Number: Kevin Livergood (TE-172638-3)

Date: 3/18/24 Time: Weather Conditions:

Page 2 of 3

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
13	Dry	13.9	-	-	8-10	-	6x10	-	-	-	-	-	-	-	-	-	-	D,P	Dry
14	Dry	13.9	-	-	8-10	-	8x16	-	-	-	-	-	-	-	-	-	-	D	Dry
15	Dry	13.9	-	-	5-6	-	6x8	-	-	-	-	-	-	-	-	-	-	D	Dry
16	Dry	13.9	-	-	10	-	6x12	-	-	-	-	-	-	-	-	-	-	D	Dry
17	Dry	13.9	-	-	12	-	10x28	-	-	-	-	-	-	-	-	-	-	D	Dry
18	Dry	13.9	-	-	5	-	35x4	-	-	-	-	-	-	-	-	-	-	D	Dry
19	Dry	13.9	-	-	5-6	-	3x7	-	-	-	-	-	-	-	-	-	-	D	Dry
20	AB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	SKIPPED #	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22		13.9	12.2	8	12	1x8	4x16	BR	-	-	-	X	-	-	-	-	-	D,TT-RR	
23	Dry	13.9	-	-		-	1x16	-	-	-	-	-	-	-	-	-	-	D,TT-RR	Dry
24		16.7	17.8	10-12	10-15	18x25	20x40	BR	-	-	-	X	-	X	X	-	-	D,TT-RR	Gravid ♀ 5-10:18
25	Dry	16.7	-	-	10	-	4x4	-	-	-	-	-	-	-	-	-	-	D,TT-RR	Dry

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Double Butte	County: Riverside	Quad: Romoland	Township: T5S	Range: R3W	Section: 14
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SURVEYOR / Permit Number:Kevin Livergood (TE-172638-3)

Date: 3/10/21	Time:	Weather Conditions:
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Page 3 of 3

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Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Lindleriella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

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Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods																			
Site or Project Name: Double Butte				County: Riverside				Quad: Romoland				Township: T5S		Range: R3W		Section: 14			
SURVEYOR / Permit Number: Kevin Livergood (TE-172638-3)																			
Date: 8/25/24		Time: 0825		Weather Conditions: 43°F, 0-1 mph, 0% cc															
Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
Main 1		8.3	12.7	20-22	35-40	30x40	35x50	-	-	-	-	X	-	X	X	-	-	D, T, AB	Tad- poles (sp. ft) + others?
Main 2		8.3	11.8	8-10	35-40	7x20	30x60	-	-	-	-	-	-	X	X	-	-	D, T, AB	1 sp. foot tadpole
1	Dry	8.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	D	Dry
2	Dry	8.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	D	Dry
3a	Dry	8.3	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	D, P	Dry
3b	Dry	8.3	-	-	5	-	7x9	-	-	-	-	-	-	-	-	-	-	D, P	Dry
4	Dry	8.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	D, P	Dry
5	Dry	8.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	D, P	Dry
6	Dry	8.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	D, P	Dry
7	Dry	8.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	D, P	Dry
8	Dry	8.3	-	-	6	-	2x2	-	-	-	-	-	-	-	-	-	-	D, P	Dry
9	Dry	8.3	-	-	6-8	-	6x6	-	-	-	-	-	-	-	-	-	-	D, P	Dry
10	Dry	8.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	D, P	Dry
11	Dry	8.3	-	-	9	-	8x12	-	-	-	-	-	-	-	-	-	-	D, P	Dry

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods																			
Site or Project Name: Double Butte				County: Riverside		Quad: Romoland			Township: T5S			Range: R3W			Section: 14				
SURVEYOR / Permit Number: Kevin Livergood (TE-172638-3)																			
Date:		Time:		Weather Conditions:															
Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
12	Dry	8.3	—	—	12	—	14x20	—	—	—	—	—	—	—	—	—	D, P	Dry	
13	Dry	8.3	—	—	8-10	—	6x10	—	—	—	—	—	—	—	—	—	D, P	Dry	
14	Dry	8.3	—	—	8-10	—	9x16	—	—	—	—	—	—	—	—	—	D, P	Dry	
15	Dry	8.3	—	—	5-6	—	6x8	—	—	—	—	—	—	—	—	—	D, P	Dry	
16	Dry	8.3	—	—	10	—	6x12	—	—	—	—	—	—	—	—	—	D, P	Dry	
17	Dry	8.3	—	—	12	—	10x28	—	—	—	—	—	—	—	—	—	D, P	Dry	
18	Dry	8.3	—	—	5	—	3.5x4	—	—	—	—	—	—	—	—	—	D, P	Dry	
19	Dry	8.3	—	—	5-6	—	3x7	—	—	—	—	—	—	—	—	—	D, P	Dry	
20	OB	—	—	—	---	---	---	---	---	—	—	—	—	—	—	—	X	Out of Bounds	
21	Skipped #	—	—	—	---	---	---	---	---	—	—	—	—	—	—	—	X	skipped #	
22	Dry	8.3	—	—	12	—	4x16	—	—	—	—	—	—	—	—	—	D, TT-RR	Dry	
23	Dry	8.3	—	—	—	—	1x16	—	—	—	—	—	—	—	—	—	D, TT-RR	Dry	
24		8.3	11.6	3-5	10-15	6x16	20x40	—	—	—	—	X	—	—	—	—	D, TT-RR	spade foot tadpoles many other tadpoles spunk.	
25	Dry	8.3	—	—	—	—	4x4	—	—	—	—	—	—	—	—	—	D, TT-RR	Dry	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).
 For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
 (Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods																					
Site or Project Name: Double Butte				County: Riverside				Quad: Romoland				Township: T5S				Range: R3W				Section: 14	
SURVEYOR / Permit Number: Kevin Livergood (TE-172638-3)																					
Date:		Time:		Weather Conditions:																	
Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects					Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information	
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae					
OFF SITE																					
A	Dry	6.1	—	—	12	—	7x15	—	—	—	—	—	—	—	—	—	—	D, TT-RR	Dry		
B	Dry	6.1	—	—	14	—	4x20	—	—	—	—	—	—	—	—	—	—	D, TT-RR	Dry		
C	Dry in- bounds	6.1	—	—	Algal	—	Algal	—	—	—	—	—	—	—	—	—	—	D, T, NP	NP-Dry in-bounds		
D	Dry	6.1	—	—	30+	—	7x40	—	—	—	—	—	—	—	—	—	—	D	Dry		
E	BRLI	6.1	8.5	12-15	30+	2x14	7x18	BRLI	—	—	—	X	—	—	X	—	—	D, CP	BRLI		

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).
 For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
 (Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods																			
Site or Project Name: Double Butte				County: Riverside				Quad: Romoland				Township: T5S		Range: R3W		Section: 14			
SURVEYOR / Permit Number: Kevin Livergood (TE-172638-3)																			
Date: 4/1/24		Time: 0830		Weather Conditions: 47F, 1-3mph 5%occ Rain 3/29-4/1: 2.3"															
Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
Main 1		8.3	23.1	30+	35-40	24x45	35x50	-	-	-	-	X	-	X	X	-	-		
Main 2		8.3	23.1	25-30	35-40	28x55	30x60	-	-	-	-	X	-	X	X	-	-		
1		8.3	24.4	3	4	3x9	9x3	-	-	-	-	-	-	-	-	-	-		
2		8.3	24.4	3	3	4x6	4x6	-	-	-	-	-	-	-	-	-	-		
3a		8.3	24.4	5	5	4x5	4x5	-	-	-	-	-	-	-	-	-	-		
3b		8.3	24.0	8	8	7x9	7x9	-	-	-	-	-	-	-	-	-	-		
4		8.3	24.2	5-7	7	4x6	4x6	-	-	-	-	-	-	-	-	-	-		
5	Dry	8.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
6		8.3	23	7	7	3x7	3x7	-	-	-	-	-	-	-	-	-	-		
7		8.3	24.8	2-3	2-3	1x1	1x2	-	-	-	-	-	-	-	-	-	-		
8		8.3	23.8	8	8	2x4	2x2	-	-	-	-	-	-	-	-	-	-		
9		8.3	23.4	10-12	10-12	6x12	6x12	-	-	-	-	-	-	-	-	-	-		
10		8.3	24.3	6	6	1x4	1x4	-	-	-	-	-	-	-	-	-	-		
11		8.3	24.4	7	7	8x12	8x12	-	-	-	-	-	-	-	-	-	-		

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Lindieriella occidentalis*, BRIL = *Branchinecta lindahli*). For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present. (Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Double Butte **County:** Riverside **Quad:** Romoland **Township:** T5S **Range:** R3W **Section:** 14

SURVEYOR / Permit Number: Kevin Livergood (TE-172638-3)

Date: 4/1/24 **Time:** **Weather Conditions:**

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
12		8.3	23.2	12-15	15	14x20	14x20	-	-	-	-	-	-	-	-	-	-		
13		8.3	23.5	10	10	6x12	6x12	-	-	-	-	-	-	-	-	-	-		
12/ 14		8.3	23.5	10	10	9x16	9x16	-	-	-	-	-	-	-	-	-	-		
15		8.3	23.8	10	6	6x8	6x8	-	-	-	-	-	-	-	-	-	-		
16		8.3	23.2	15	15	6x12	6x12	-	-	-	-	-	-	-	-	-	-		
17		8.3	23.4	12	12	10x28	10x28	-	-	-	-	-	-	-	-	-	-		
18		8.3	23.6	8	8	3x10	3.5x4	-	-	-	-	-	-	-	-	-	-		
19		8.3	23.6	8	8	6x8	6x8	-	-	-	-	-	-	-	-	-	-		
20	OB				---	---	---	---	---										
21	Skipped #				---	---	---	---	---										
22		8.3	23.3	12	12	4x16	4x16	-	-	-	-	-	-	-	-	-	-		
23		8.3	23.2	14	12-15	1x16	1x16	-	-	-	-	-	-	-	-	-	-		
24		8.3	23.2	15	10-15	20x40	20x40	-	-	-	-	X	-	X	X	-	-		
25		8.3	23.4	12	12	4x4	4x4	-	-	-	-	-	-	-	-	-	-		

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods																			
Site or Project Name: Double Butte				County: Riverside				Quad: Romoland				Township: T5S				Range: R3W		Section: 14	
SURVEYOR / Permit Number: Kevin Livergood (TE-172638-3) [Project #: 13985.25.1]																			
Date: 4/8/24		Time: 0900		Weather Conditions: Project: [13985.25.1] 48°F, 1-2 mph, 20% occ															
Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
Main 1	120 days 3/25/24	10.6	-	25	35-40	-	35x50	-	-	X	-	X	-	X	-	-	-	NP	>120 days
Main 2		10.6	16.4	20	35-40	20x50	30x60	-	-	X	-	-	-	X	-	-	-	NP, D, T	
1	Dry 27 days	10.6	-	-	4	-	3x9	-	-	-	-	-	-	-	-	-	-	D, TT	
2	Dry 27 days	10.6	-	-	3	-	4x6	-	-	-	-	-	-	-	-	-	-	D, TT	
3a	Dry	11.7	-	-	5	-	4x5	-	-	-	-	-	-	-	-	-	-	D	
3b	Dry	11.7	-	-	8	-	7x9	-	-	-	-	-	-	-	-	-	-	D	
4	Dry	11.7	-	-	7	-	4x6	-	-	-	-	-	-	-	-	-	-	D	
5	Unsuitable	11.7	-	-	---	-	---	-	-	-	-	-	-	-	-	-	-	D	Unsuitable 27 days
6	Dry	11.7	-	-	7	-	3x7	-	-	-	-	-	-	-	-	-	-	D	Unsuitable
7	Dry	11.7	-	-	2-3	-	1x2	-	-	-	-	-	-	-	-	-	-	D	Unsuitable
8	Dry	11.7	-	-	8	-	2x4	-	-	-	-	-	-	-	-	-	-	D	Dry
9	Dry	11.7	-	-	10-12	-	6x12	-	-	-	-	-	-	-	-	-	-	D	Dry
10	Dry	11.7	-	-	6	-	1x4	-	-	-	-	-	-	-	-	-	-	D	Dry
11	Dry	11.7	-	-	7	-	8x12	-	-	-	-	-	-	-	-	-	-	D	Dry

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahl*).
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed
by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Double Butte County: Riverside Quad: Romoland Township: T5S Range: R3W Section: 14

SURVEYOR / Permit Number: Kevin Livergood (TE-172638-3)

Date: Time: Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
12		11.7	22.4	2	15	2x3	14x20	-	-	-	-	-	-	-	-	-	-	D	
13	Dry	11.7	-	-	10	-	6x12	-	-	-	-	-	-	-	-	-	-	D, Paw	Dry
14	Dry	11.7	-	-	10	-	9x16	-	-	-	-	-	-	-	-	-	-	D, Paw	Dry
15	Dry	11.7	-	-	6	-	6x8	-	-	-	-	-	-	-	-	-	-	D, P	Dry
16	Dry	11.7	-	-	15	-	6x12	-	-	-	-	-	-	-	-	-	-	D, P	Dry
17		11.7	22.4	2	12	1x2	10x28	BR Imm	-	-	-	-	-	-	-	-	-	D, T	Imm - Sampled very shallow
18	Dry	11.7	-	-	8	-	3x10	-	-	-	-	-	-	-	-	-	-		Dry
19	Dry	11.7	-	-	8	-	6x8	-	-	-	-	-	-	-	-	-	-		Dry
22		10.6	16.2	8	12	3x7	4x16	BR Imm	-	X	-	-	-	-	-	-	-	D, TT	
23	Dry	10.6	-	-	15	-	1x16	-	-	-	-	-	-	-	-	-	-	D, TT	Dry
24		10.6	16.1	10	15	15x35	20x40	BRLI	-	-	-	X	-	-	-	-	-	D, TT	
25	Dry	10.6	-	-	12	-	4x4	-	-	-	-	-	-	-	-	-	-	D, TT	Dry

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Lindleriella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Double Butte	County: Riverside	Quad: Romoland	Township: T5S	Range: R3W	Section: 14
SURVEYOR / Permit Number: Kevin Livergood (TE-172638-3)					
Date: 4/8/24	Time:	Weather Conditions:			

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
OFF-SITE																			
A		8.9	12.9	5	12	3x4	4x19	—	—	—	—	—	—	—	—	—	—	D, TT	
B		8.9	8.8	10	14	2x12	7x20	BR 10s IMM	—	—	—	—	—	—	—	—	—	D, TT	No collect Immature
C		8.9	12.2	12-15	30	25x80	30x80	BR 5s IMM	—	—	x	x	—	—	—	—	—	D, T	No collect Immature
D		8.9	8.7	10	30+	3x35	7x40	BR 5s IMM	—	x	—	x	—	—	—	—	—	D, CP	No collect Immature
E		8.9	12.5	25	30+	3x18	7x18	—	—	—	—	—	—	—	—	—	—	D, T, CP	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).
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 by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
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Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods																			
Site or Project Name: Double Butte				County: Riverside				Quad: Romoland				Township: T5S				Range: R3W		Section: 14	
SURVEYOR / Permit Number: Kevin Livergood (TE-172638-3) [Project #: 13985.25.1]																			
Date: 4/15/24		Time: 0930		Weather Conditions: Project: [13985.25.1] 55°F, 1-3 mph, 80% cc															
Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
Main 1	> 120 ponding	12.2	-	-	35-40	-	35x50	-	-	-	-	-	-	-	-	-	-	D, CP	7/20 No sampling
Main 2		12.2	18.2	13	35-40	-	30x60	-	-	-	-	-	-	-	X	-	-	D, T	Algal bloom
1	Dry	12.2	-	-	4	-	3x9	-	-	-	-	-	-	-	-	-	-	D	Dry
2	Dry	12.2	-	-	3	-	4x6	-	-	-	-	-	-	-	-	-	-	D	Dry
3a	Dry	12.2	-	-	5	-	4x5	-	-	-	-	-	-	-	-	-	-	D	Dry
3b	Dry	12.2	-	-	8	-	7x9	-	-	-	-	-	-	-	-	-	-	D	Dry
4	Dry	12.2	-	-	7	-	4x6	-	-	-	-	-	-	-	-	-	-	D	Dry
5	Unsuitable	12.2	-	-	---	-	---	-	-	-	-	-	-	-	-	-	-	D	Dry
6	Dry	12.2	-	-	7	-	3x7	-	-	-	-	-	-	-	-	-	-	D	Dry
7	Dry	12.2	-	-	2-3	-	1x2	-	-	-	-	-	-	-	-	-	-	D	Dry
8	Dry	12.2	-	-	8	-	2x4	-	-	-	-	-	-	-	-	-	-	D	Dry
9	Dry	12.2	-	-	10-12	-	6x12	-	-	-	-	-	-	-	-	-	-	D	Dry
10	Dry	12.2	-	-	6	-	1x4	-	-	-	-	-	-	-	-	-	-	D	Dry
11	Dry	12.2	-	-	7	-	8x12	-	-	-	-	-	-	-	-	-	-	D	Dry

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Lindleriella occidentalis*, BRLL = *Branchinecta lindahl*).
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods																				
Site or Project Name: Double Butte				County: Riverside				Quad: Romoland				Township: T5S				Range: R3W		Section: 14		
SURVEYOR / Permit Number: Kevin Livergood (TE-172638-3)																				
Date:		Time:		Weather Conditions:																
Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects					Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae				
12	Dry	12.2	-	-	15	-	14x20	-	-	-	-	-	-	-	-	-	-	D	Dry	
13	Dry	12.2	-	-	10	-	6x12	-	-	-	-	-	-	-	-	-	-	D	Dry	
14	Dry	12.2	-	-	10	-	9x16	-	-	-	-	-	-	-	-	-	-	D	Dry	
15	Dry	12.2	-	-	6	-	6x8	-	-	-	-	-	-	-	-	-	-	D	Dry	
16	Dry	12.2	-	-	15	-	6x12	-	-	-	-	-	-	-	-	-	-	D	Dry	
17	Dry	12.2	-	-	12	-	10x28	-	-	-	-	-	-	-	-	-	-	D	Dry	
18	Dry	12.2	-	-	8	-	3x10	-	-	-	-	-	-	-	-	-	-	D	Dry	
19	Dry	12.2	-	-	8	-	6x8	-	-	-	-	-	-	-	-	-	-	D	Dry	
22	Dry	13.9	-	-	12	-	4x16	-	-	-	-	-	-	-	-	-	-	D	Dry	
23	Dry	13.9	-	-	15	-	1x16	-	-	-	-	-	-	-	-	-	-	D, TT-RR	Dry	
24		13.9	18.2	8	15		20x40	BR	-	-	-	-	-	-	-	-	-	D, TT-RR		
25	Dry	13.9	-	-	12	-	4x4	-	-	-	-	-	-	-	-	-	-	D, TT-RR	Dry	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Lindieriella occidentalis*, BRLL = *Branchinecta lindahli*).
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods																			
Site or Project Name: Double Butte					County: Riverside			Quad: Romoland				Township: T5S			Range: R3W			Section: 14	
SURVEYOR / Permit Number: Kevin Livergood (TE-172638-3)																			
Date:		Time:		Weather Conditions:															
Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
OFF-SITE																			
A	Dry	12.8	—	—	12	—	4x19	—	—	—	—	—	—	—	—	—	—	D,P	Dry
B	Dry	12.8	—	—	14	—	7x20	—	—	—	—	—	—	—	—	—	—	D,P	Dry
C	Dry: In-Bounds	12.8	—	—	30	—	30x80	—	—	—	—	—	—	—	—	—	—	D,P	Dry in-bounds
D	Dry	12.8	—	—	30+	—	7x40	—	—	—	—	—	—	—	—	—	—	D,CP	Dry
E		12.8	14	12	30+	25x12	7x18	—	—	—	—	—	—	—	—	—	—	D,CP,T	sp. ft. Tadpoles.

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).
 For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
 (Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods																					
Site or Project Name: Double Butte				County: Riverside				Quad: Romoland				Township: T5S				Range: R3W				Section: 14	
SURVEYOR / Permit Number: Kevin Livergood (TE-172638-3) [Project #: 13985.25.1]																					
Date: 4/22/24		Time: 0830		Weather Conditions: Project: [13985.25.1] 58°F, 1-3mph, 0%cc																	
Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information		
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae					
Main 1	>120 ponding	14.4	-	-	35-40	-	35x50	-	-	-	-	-	-	-	-	-	-	-	>120-ponding		
Main 2	Dry	14.4	-	-	35-40	-	30x60	-	-	-	-	-	-	-	-	-	-	-	Dry		
1	Dry	14.4	-	-	4	-	3x9	-	-	-	-	-	-	-	-	-	-	-	Dry		
2	Dry	14.4	-	-	3	-	4x6	-	-	-	-	-	-	-	-	-	-	-	Dry		
3a	Dry	14.4	-	-	5	-	4x5	-	-	-	-	-	-	-	-	-	-	-	Dry		
3b	Dry	14.4	-	-	8	-	7x9	-	-	-	-	-	-	-	-	-	-	-	Dry		
4	Dry	14.4	-	-	7	-	4x6	-	-	-	-	-	-	-	-	-	-	-	Dry		
5	Unsuitable	14.4	-	-	---	-	---	-	-	-	-	-	-	-	-	-	-	-	Dry		
6	Dry	14.4	-	-	7	-	3x7	-	-	-	-	-	-	-	-	-	-	-	Dry		
7	Dry	14.4	-	-	2-3	-	1x2	-	-	-	-	-	-	-	-	-	-	-	Dry		
8	Dry	14.4	-	-	8	-	2x4	-	-	-	-	-	-	-	-	-	-	-	Dry		
9	Dry	14.4	-	-	10-12	-	6x12	-	-	-	-	-	-	-	-	-	-	-	Dry		
10	Dry	14.4	-	-	6	-	1x4	-	-	-	-	-	-	-	-	-	-	-	Dry		
11	Dry	14.4	-	-	7	-	8x12	-	-	-	-	-	-	-	-	-	-	-	Dry		

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Lindnerella occidentalis*, BRLI = *Branchinecta lindahli*).
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods																				
Site or Project Name: Double Butte				County: Riverside				Quad: Romoland				Township: T5S				Range: R3W		Section: 14		
SURVEYOR / Permit Number: Kevin Livergood (TE-172638-3)																				
Date:		Time:		Weather Conditions:																
Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects					Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae				
12		14.4	-	-	15	-	14x20	-	-	-	-	-	-	-	-	-	-	-	Dry	
13		14.4	-	-	10	-	6x12	-	-	-	-	-	-	-	-	-	-	-	Dry	
14		14.4	-	-	10	-	9x16	-	-	-	-	-	-	-	-	-	-	-	Dry	
15		14.4	-	-	6	-	6x8	-	-	-	-	-	-	-	-	-	-	-	Dry	
16		14.4	-	-	15	-	6x12	-	-	-	-	-	-	-	-	-	-	-	Dry	
17		14.4	-	-	12	-	10x28	-	-	-	-	-	-	-	-	-	-	-	Dry	
18		14.4	-	-	8	-	3x10	-	-	-	-	-	-	-	-	-	-	-	Dry	
19		14.4	-	-	8	-	6x8	-	-	-	-	-	-	-	-	-	-	-	Dry	
22		14.4	-	-	12	-	4x16	-	-	-	-	-	-	-	-	-	-	-	Dry	
23		14.4	-	-	15	-	1x16	-	-	-	-	-	-	-	-	-	-	-	Dry	
24		14.4	-	-	15	-	20x40	-	-	-	-	-	-	-	-	-	-	-	Dry	
25		14.4	-	-	12	-	4x4	-	-	-	-	-	-	-	-	-	-	-	Dry	
																			Dry	
																			Dry	
																			Dry	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Lindieriella occidentalis*, BRLL = *Branchinecta lindahli*).
For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed, G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.
(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods					
Site or Project Name: Double Butte	County: Riverside	Quad: Romoland	Township: T5S	Range: R3W	Section: 14

Site or Project Name: Double Butte

County: Riverside

Quad: Romoland

Township: T5S

Range: R3W

Section: 14

SURVEYOR / Permit Number:Kevin Livergood (TE-172638-3)

Date: _____

Time:

Weather Conditions:

[illegible]

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = fire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by; C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Double Butte County: Riverside Quad: Romoland Township: T5S Range: R3W Section: 14

SURVEYOR / Permit Number: Kevin Livergood (TE-172638-3) [Project #: 13985.25.1]

Date: 4/29/24 Time: 0830 Weather Conditions: Project: [13985.25.1] 61°F 0-1mph, 0%cc

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects			Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae		
Main 1	> 120 days				35-40		35x50											
Main 2			—	—	35-40	—	30x60											
1			—	—	4	—	3x9											
2			—	—	3	—	4x6											
3a			—	—	5	—	4x5											
3b			—	—	8	—	7x9											
4			—	—	7	—	4x6											
5	Unsuitable		—	—	---	—	---											
6			—	—	7	—	3x7											
7			—	—	2-3	—	1x2											
8			—	—	8	—	2x4											
9			—	—	10-12	—	6x12											
10			—	—	6	—	1x4											
11			—	—	7	—	8x12											

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLL = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

* All features are dry or exceed 120 days.
2023/2024 Wet Season survey concluded

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods																			
Site or Project Name: Double Butte			County: Riverside			Quad: Romoland			Township: T5S			Range: R3W			Section: 14				
SURVEYOR / Permit Number: Kevin Livergood (TE-172638-3)																			
Date:		Time:		Weather Conditions:															
Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
12		16.1	-	-	15	-	14x20												
13			-	-	10	-	6x12												
14			-	-	10	-	9x16												
15			-	-	6	-	6x8												
16			-	-	15	-	6x12												
17			-	-	12	-	10x28												
18			-	-	8	-	3x10												
19			-	-	8	-	6x8												
22			-	-	12	-	4x16												
23			-	-	15	-	1x16												
24			-	-	15	-	20x40												
25			-	-	12	-	4x4												

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).
 For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by; C = cattle, H = horses, S = sheep; AB = Algal blooms present.
 (Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service – Data Sheet for Wet Season Surveys For Listed Large Branchiopods

Site or Project Name: Double Butte County: Riverside Quad: Romoland Township: T5S Range: R3W Section: 14

SURVEYOR / Permit Number: Kevin Livergood (TE-172638-3)

Date: 4/29/24 Time: 0830 Weather Conditions:

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects					Platyhelminths (flatworms)	Habitat Condition	Notes / Voucher information
		Air	Water	Average	Est. Max.	Present	Est. Max.	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae				
OFF-SITE																				
A		16.1	—	—	12	—	4x19													
B		16.1	—	—	14	—	7x20													
C		16.1	—	—	30	—	30x80													
D		16.1	—	—	30+	—	7x40													
E		16.1	—	—	30+	—	7x18											western + Spade-foot tadpoles IN mud.		

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = *Linderiella occidentalis*, BRLI = *Branchinecta lindahli*).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed; with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

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