



GREAT BASIN BIRD OBSERVATORY

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Crescent Dunes Solar Energy Project

Monitoring Narrative

June 2016

Prepared By Great Basin Bird Observatory

Great Basin Bird Observatory (GBBO) is engaged in a cooperative agreement with the Bureau of Land Management (BLM) to conduct avian use and mortality surveys at the Crescent Dunes Solar Energy Project facility, hereafter “the facility”, which is a concentrated solar power facility located near Tonopah, NV. This monitoring effort compliments the existing Crescent Dunes Avian and Bat Protection Plan (ABPP), which is implemented by Stantec Consulting Services Inc. (Stantec). The results of avian use and mortality surveys conducted by GBBO during June 2016 are summarized in this narrative.

Survey cycles were completed in two-week intervals, which is the goal for the summer breeding season. A complete survey cycle consists of eighty total plot-based mortality surveys in the facility and in the surrounding 2-mile buffer zone, as well as surveys along the entire facility fence line and around the three waste water ponds. Avian use surveys include sixty randomly distributed point count points within the buffer zone and the facility, four regional ten-point transects, and an inventory of individuals using the ponds once during the cycle. Two full survey cycles were completed between May 30th and June 23rd. A third cycle began June 27th and will conclude July 6th. All surveys completed between May 30th and June 30th are included in this report.

Nine avian mortalities were discovered by GBBO during June mortality surveys. Identifiable species included a Red-necked Phalarope, two Eared Grebes, a California Gull, a Horned Lark, and a Green-winged Teal. The phalarope, Horned Lark, and Green-winged Teal consisted of body parts only. Predation was the cause of death for one of the Eared Grebes, and the second had been scavenged. The California Gull was fresh and intact with no visible indications of cause of death, though there had been a California Gull present during pond surveys a few days earlier that was not looking well. There were three additional feather spots that could not be identified to species (Table 1). A majority of the mortalities were discovered in and around the evaporation ponds (Fig. 1). All the mortalities were found during planned mortality surveys besides one Eared Grebe and the California Gull, which were found at the ponds during a training session. There were two additional mortalities reported by Stantec and collected by GBBO, including a Common Raven and the remains of a House Sparrow.

There were ten non-avian mortalities discovered in the facility and buffer zone by GBBO surveyors. All mortalities found the facility heliostat field had been scavenged/ predated and included the remains of a black-tailed jackrabbit, a chisel-toothed kangaroo rat, an Ord's kangaroo rat, and an unidentifiable rodent. During mortality surveys at the evaporation ponds, a kit fox, a whiptail lizard, and a desert wood rat were found in and around the ponds. It is likely they had climbed into the ponds, couldn't climb out, and drowned. The whiptail and

wood rat were intact and showed no signs of trauma, but the kit fox was partially decomposed. In the buffer zone, two intact little pocket mice were found in mortality plots, and likely died of natural causes. There was one additional rodent mortality in the buffer zone that could not be identified to species due to its scavenged condition. Detailed information on each GBBO mortality along with a photo can be found in Appendix 1, and locations are plotted in Figure 1. The mortalities discovered and recorded by Stantec are also included in Figure 1. All UTMs are recorded in NAD83.

Table 1. Avian mortalities discovered by GBBO June 2016

Species	Date	Location	Comments
Unknown	6/1/2016	Fence line	Feather spot
Red-necked Phalarope	6/1/2016	Fence line	Wing only
Unknown dove	6/2/2016	Facility	Feather spot
Unknown dove	6/2/2016	Facility	Feather spot
California Gull	6/14/2016	Ponds	No identifiable cause of death. Feathers worn, but did not appear singed. A sickly gull was observed a few days before.
Eared Grebe	6/14/2016	Ponds	Predation- head missing
Green-winged Teal	6/19/2016	Facility	Wing only
Eared Grebe	6/27/2016	Ponds	Scavenged
Horned Lark	6/29/2016	Buffer	Feather spot- tail feathers

Point counts were conducted in the facility, in the buffer zone, and regionally. 308 birds were recorded in the facility representing 20 species, which is the highest richness of the three point count locations (Table 2). House Finches were the most abundant species recorded followed by Horned Larks, equaling 37.0% and 16.2% of all facility observations respectively. House Sparrows and Common Ravens were also common. Abundance was slightly higher in the buffer zone (404 observations) compared to the facility, partially due to the large number of Horned Larks recorded, which made up 67.5% of all buffer zone records. Black-throated Sparrows were the second most abundant species. A total of 12 species were recorded in the buffer zone, which is the lowest richness of all three point count locations.

Abundance was highest on regional transects with 759 records, though effort is highest on regional transects (40 points vs. 30 in the buffer zone) and one survey cycle is only partially completed. Richness was similar to that of the buffer zone with 14 species recorded. Again, Horned Larks were the most common species recorded and made up 57.8% of all observations. Black-throated Sparrows were the next most abundant species, followed by Sagebrush Sparrows, which were not recorded at all during facility point counts. A summary of observations recorded during point counts can be found in Table 2.

The three waste water collection ponds located in the southwestern quadrant of the facility were surveyed three times during which 16 species were recorded. There were 318 birds were recorded with Eared Grebes being the most abundant species recorded with one-third of all observations. There was a high number of Wilson's Phalaropes recorded due to a single observation on June 27th of 72 individuals. A summary of all detections recorded at each pond is included in Table 3.

As outlined in the GBBO Crescent Dunes Monitoring proposal, a comprehensive seasonal report will be produced following the completion of each monitoring season. This report will include the results of avian use surveys, mortality surveys, as well as searcher efficiency and scavenger removal trials.

Table 2. Summary of avian use point count surveys at Crescent Dunes June 2016. Species in alphabetical order.

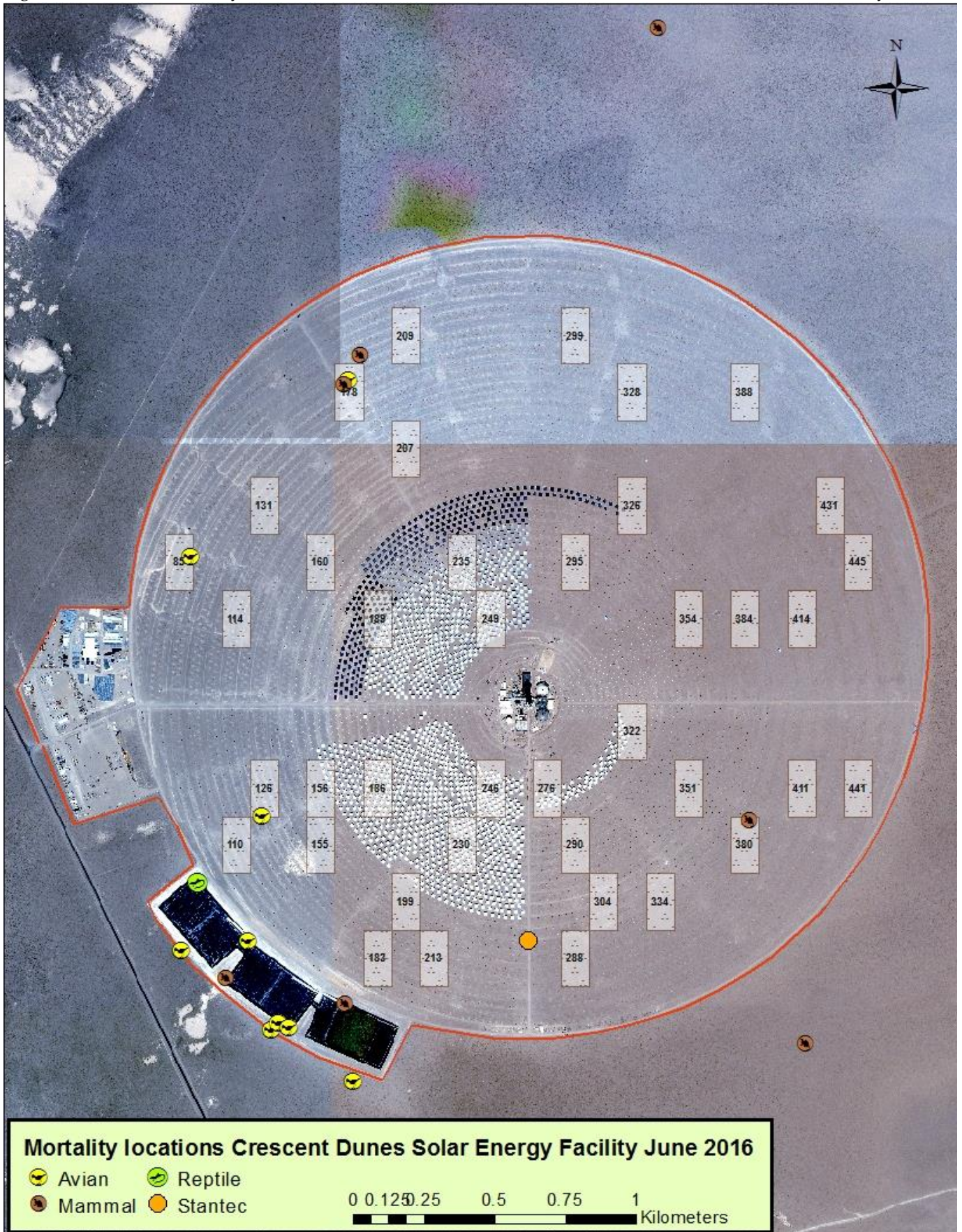
Species	Facility	Buffer zone	Regional transect
American Kestrel			1
Black-throated Sparrow	16	95	254
Brewer's Sparrow			7
Burrowing Owl			3
Common Raven	11	27	1
Eared Grebe	23		
Eurasian Collared-Dove	4		
European Starling	2		
Horned Lark	50	297	439
House Finch	114	6	
House Sparrow	28		
Lark Sparrow	4		
Loggerhead Shrike			2
Mallard	1		
Mourning Dove	3	1	4
Northern Harrier		1	
Northern Mockingbird	1	2	2
Prairie Falcon	1		1
Red-tailed Hawk		1	
Ring-billed Gull	1		
Rock Wren			5
Ruddy Duck	1		
Sagebrush Sparrow		3	37
Say's Phoebe	28	4	1
Spotted Sandpiper	1		
Unidentified Dove	1		
Unidentified Passerine		1	1
Violet-green Swallow			1
Western Kingbird	16	1	
Western Wood-Pewee	1		
White-crowned Sparrow		1	
Yellow-headed Blackbird	1		
Total all species	308	440	759

Table 3. Summary of observations at the ponds June 2016. Results of three surveys are combined. Species listed in alphabetical order.

Species	North	Middle	South	Total three ponds
American Avocet	12			12
American Coot		6	3	9
Black-necked Stilt			6	6
California Gull	48			48
Eared Grebe	18	48	40	106
Gadwall			6	6

Killdeer			1	1
Lesser Scaup		1		1
Mallard	3			3
Northern Pintail	2	2		4
Ring-billed Gull	8	1		9
Ruddy Duck	2	3		5
Spotted Sandpiper	2			2
Western Sandpiper			4	4
White-faced Ibis	9			9
Wilson's Phalarope	4	81	8	93
Total all species	108	142	68	318

Figure 1. June 2016 mortality locations. Not shown: Little Pocket Mouse and Common Raven discovered by Stantec.



Appendix 1: GBBO June 2016 Mortalities


June 2016 Mortalities**Unknown avian**

Carcass ID #:	SW060120160715	No picture available
Date:	6/1/16	
Location:	SW Fence line	
Coordinates in Nad83:	11S 466958 4231508	
Condition:	Feather spot	
Comments:	Unknown cause of death	


Red-necked Phalarope

Carcass ID #:	SW060120160728	
Date:	6/1/16	
Location:	SW Fence line	
Coordinates in Nad83:	11S 467275 4231227	
Condition:	Body parts/feathers only	
Comments:	One wing. Scavenged.	


June 2016 Mortalities**Unknown dove 1**

Carcass ID #:	85060220161030	
Date:	5/17/16	
Location:	NE Fence line	
Coordinates in Nad83:	11S 469250 4233547	
Condition:	Feather spot	
Comments:	Cannot determine cause of death	


Unknown dove 2

Carcass ID #:	17806022016905	
Date:	6/2/2016	
Location:	NW Fence line	
Coordinates in Nad83:	11S 467546 4233525	
Condition:	Feather Spot	
Comments:	Unknown cause of death	


California Gull

Carcass ID #:	INC061420160846	
Date:	6/14/16	
Location:	Evaporation ponds	
Coordinates in Nad83:	11S 467301 4231252	
Condition:	Fresh, intact	
Comments:	No obvious cause of death, but feathers worn and a sickly looking California Gull was documented a few days prior	


Eared Grebe 1

Carcass ID #:	Inc061420160902	
Date:	6/14/16	
Location:	Evaporation ponds	
Coordinates in Nad83:	11S 467336 4231236	
Condition:	Early decomposition	
Comments:	Predation is the likely cause of death. The head was missing.	


Green-winged Teal

Carcass ID #:	126061920161118	
Date:	6/19/16	
Location:	Heliostat field	
Coordinates in Nad83:	11S 467241 4231983	
Condition:	Body Parts	
Comments:	A wing only	

Eared Grebe 2

Carcass ID #:	MIPO062720161005	
Date:	6/27/16	
Location:	Evaporation ponds	
Coordinates in Nad83:	11S 467194 4231540	
Condition:	Scavenged	
Comments:	Unknown cause of death	

Horned Lark

Carcass ID #:	2129062920160709	
Date:	6/29/16	
Location:	Buffer plot 2129	
Coordinates in Nad83:	11S 467565 4231044	
Condition:	Body parts	
Comments:	Tail only	

Unknown rodent 1


Carcass ID #:	380061320161047	
Date:	6/13/16	
Location:	Facility plot 380	
Coordinates in Nad83:	11S 468966 4231967	
Condition:	Fresh, intact	
Comments:	No apparent cause of death	

Little pocket mouse 1

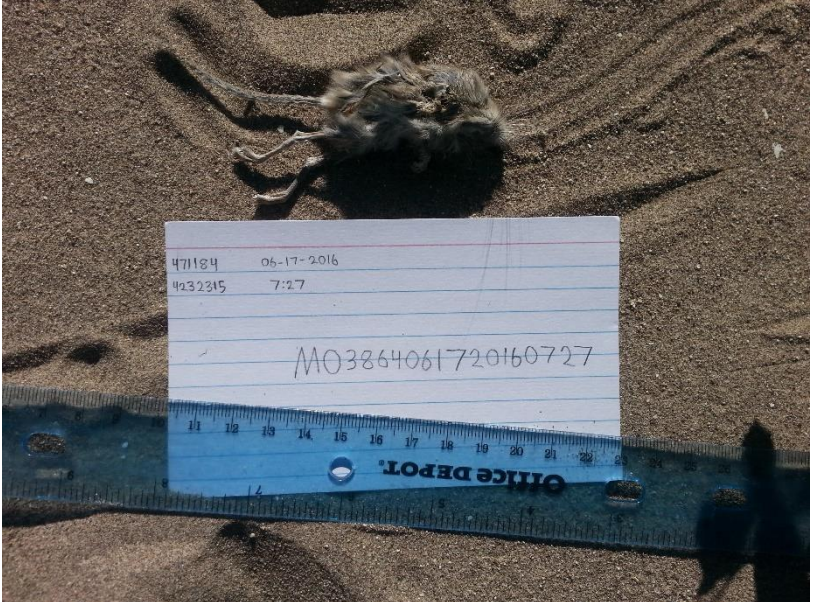
Carcass ID #:	2676061420160925	
Date:	6/14/16	
Location:	Buffer plot 2676	
Coordinates in Nad83:	11S 468641 4234766	
Condition:	Fresh, intact	
Comments:	Unknown cause of death	

June 2016 Mortalities- Non-avian


Kit fox

Carcass ID #:	NOPO062720161055	
Date:	6/27/16	
Location:	Evaporation ponds	
Coordinates in Nad83:	11S 467536 4231317	
Condition:	Desiccated	
Comments:	Drowning	


Little pocket mouse 2

Carcass ID #:	3864061720160727	
Date:	6/14/16	
Location:	Buffer plot 3864	
Coordinates in Nad83:	11S 471184 4232315	
Condition:	Late decomposition	
Comments:	Unknown cause of death	


Great Basin Whiptail

Carcass ID #:	NOPO062720161105	
Date:	6/27/16	
Location:	Evaporation ponds	
Coordinates in Nad83:	11S 467013 4231749	
Condition:	Fresh, intact	
Comments:	No apparent cause of death	


Desert woodrat

Carcass ID #:	MIPO062720161030	
Date:	6/27/16	
Location:	Evaporation ponds	
Coordinates in Nad83:	11S 467112 4231410	
Condition:	Early decomposition	
Comments:	Drowning	


Unknown rodent 2

Carcass ID #:	2898062920160923	
Date:	6/29/16	
Location:	Buffer plot 2898	
Coordinates in Nad83:	11S 469163 4231176	
Condition:	Body parts	
Comments:	Unknown cause of death	


Ord's kangaroo rat

Carcass ID #:	178063020160947	
Date:	6/30/16	
Location:	Facility plot 178	
Coordinates in Nad83:	11S 467591 4233611	
Condition:	Body parts	
Comments:	Unknown cause of death	

Black-tailed jackrabbit

Carcass ID #:	178063020161016	
Date:	6/30/16	
Location:	Facility plot 178	
Coordinates in Nad83:	11S 467530 4233509	
Condition:	Body parts	
Comments:	Unknown cause of death	

Chisel-toothed kangaroo rat

Carcass ID #:	178063020160958	
Date:	6/30/16	
Location:	Facility plot 178	
Coordinates in Nad83:	11S 467591 4233611	
Condition:	Body parts	
Comments:	Unknown cause of death	