



GREAT BASIN BIRD OBSERVATORY

1755 E. Plumb Lane, Suite #256A Reno, NV 89502

(775) 323-4226

<http://www.gbbo.org>

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Crescent Dunes Solar Energy Project

Monitoring Narrative

May 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. The function of this monitoring effort is to complement the existing Crescent Dunes Avian and Bat Protection Plan (ABPP), which is implemented by Stantec Consulting Services Inc. (Stantec). This monitoring narrative summarizes the results of mortality and avian use surveys conducted by GBBO during May 2016, which is the final month for the spring migration season.

Survey cycles were completed in two-week intervals, as specified for the spring migration season in our work agreement. The scope of a complete survey cycle consists of eighty 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 2nd and May 27th. A third cycle began on May 30th, the results of which will be included in the June monitoring narrative.

Six avian and six mammalian mortalities were discovered by GBBO during mortality surveys and incidentally in the facility and buffer zone during May 2016. Mortalities included a Costa’s Hummingbird, two Eurasian Collared-Doves, a Mourning Dove, and two unknowns. Three were discovered during facility mortality surveys, and the remaining three were found while surveying the facility fence line. All mortalities but the Costa’s Hummingbird were feather spots or body parts, indicating predation or scavenging. The hummingbird was intact and relatively fresh, but showed no signs of collision or singeing. All avian mortalities discovered by GBBO are described below in Table 1.

ID Num	Species	Date	Location	Comments
1	Costa's Hummingbird	5/4/2016	Facility	Intact.
2	Unknown	5/7/2016	Facility	Few feathers attached to bone
3	Eurasian Collared-Dove	5/17/2016	Fence line	Feather spot
4	Mourning Dove	5/16/2016	Fence line	Feather spot
5	Eurasian Collared-Dove	5/17/2016	Fence line	Feather spot
6	Unknown Passerine	5/25/2016	Facility	Body Parts

Table 1. Avian mortalities discovered by GBBO May 2016

There were five mortalities discovered by Stantec or facility workers that were collected by GBBO under our USFWS and NDOW special use permits. These mortalities included two Eared Grebes, a Eurasian Collared-Dove, a Yellow-breasted Chat, and a Rock Pigeon. Two birds were also reported injured by facility workers and showed signs of heat or flux injuries, including a Tree Swallow and a Lewis's Woodpecker. Both were brought to wildlife rehabilitation facilities by GBBO. The Tree Swallow died a few days later, likely due to stress caused by its injuries, and the Lewis's Woodpecker was euthanized when it was determined its injuries were too severe for rehabilitation.

All of the mammalian mortalities were discovered during planned mortality searches in facility plots or along the facility fence line. The species included two Northern grasshopper mice, an Ord's kangaroo rat, and a Merriam's kangaroo rat. Two mortalities were heavily scavenged and could not be identified to species. 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 UTM's are recorded in NAD83.

Point counts were conducted in the facility, in the buffer zone, and regionally. Abundance was highest on regional point counts (467 birds observed), though this is partially due to a differential in survey effort (30 points in the facility vs. 40 regionally). Species richness was highest in the facility, which is at least partially attributed to the waste water collection ponds. During facility point counts, 426 birds were recorded representing 35 identifiable species (Table 2). Fifteen of these species (42.9%) were only recorded at the two point count locations adjacent to the ponds. The most abundant species recorded were House Finches and European Starlings.

In the buffer zone, 22 species were recorded with a total of 385 records. Horned Larks were the most common species recorded and made up 40.8% of all observations. Black-throated Sparrows were the next most abundant species. Twelve species were identified during regional transects and species composition was similar to that of the buffer zone with Black-throated Sparrows and Horned Larks totaling over 70% of all observations. 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 twice during the month of May. There were 207 birds recorded in total, representing 25 species. Eared Grebe and California Gulls were the most abundant species recorded, representing 28.5% and 18.8% of all observations respectively. 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 May 2016. Results of two survey cycles are combined.

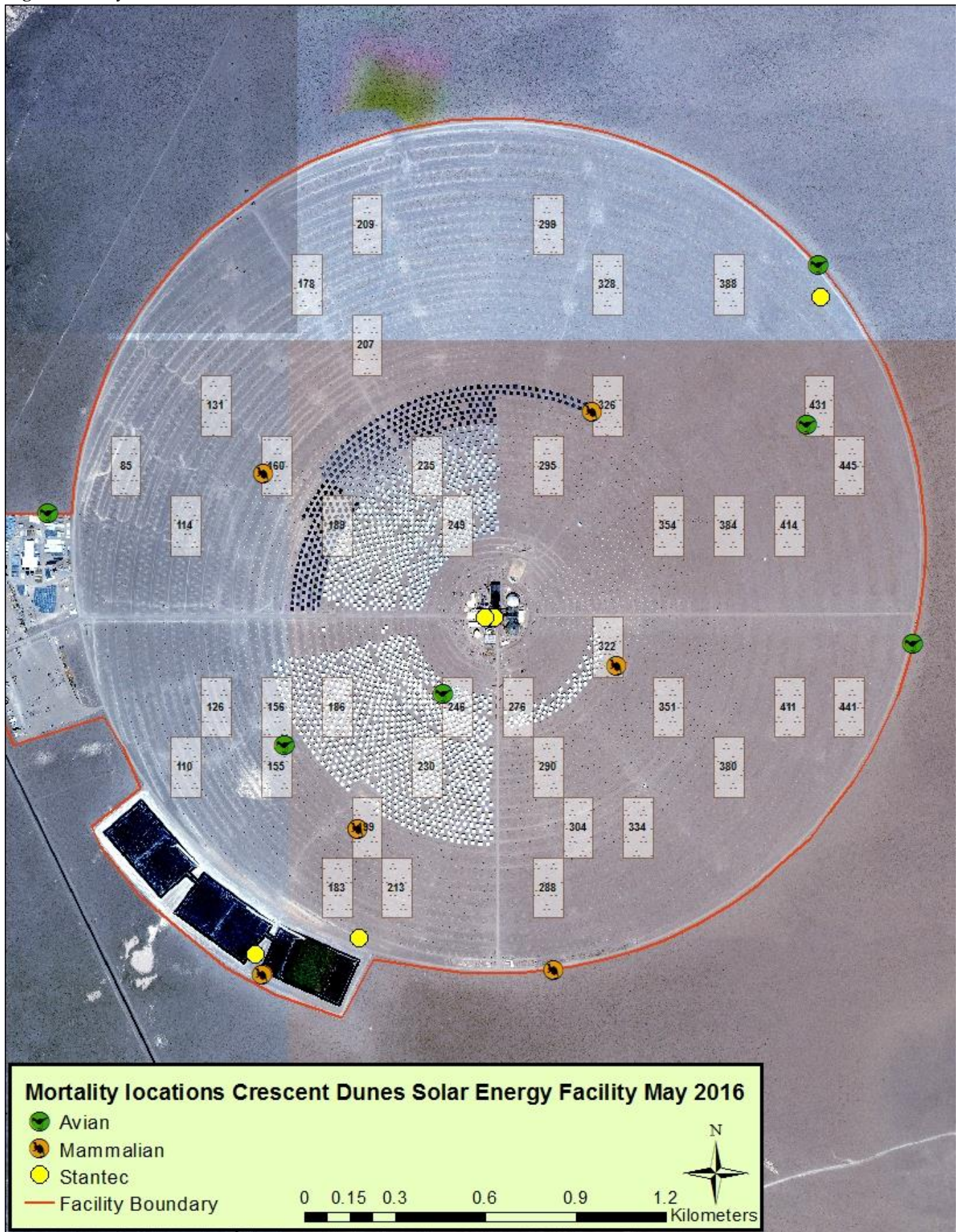
Species	Buffer	Facility	Regional Transect
American Avocet	1		
American Coot		4	
Bank Swallow		13	
Barn Swallow		28	
Black Phoebe			1
Black-throated Sparrow	66	6	199
Blue-gray Gnatcatcher			1
Bonaparte's Gull		1	
Brewer's Blackbird	1	1	
Brewer's Sparrow	18		62
Brown-headed Cowbird	27	4	
Bullock's Oriole	2		
Chipping Sparrow		1	
Cliff Swallow	2	25	
Common Raven	53	21	13
Dark-eyed Junco		1	
Eared Grebe		36	
Empidonax sp.		1	
Eurasian Collared-Dove	2	3	
European Starling		45	
Golden Eagle			1
Horned Lark	157	20	157
House Finch	2	47	
House Sparrow	1	20	
Killdeer	1		
Larus sp.		22	
Loggerhead Shrike		1	
Mallard		2	
Mourning Dove	2	5	8
Northern Mockingbird	2		
Northern Rough-winged		3	
Red-necked Phalarope		8	
Red-tailed Hawk		2	1
Ring-billed Gull		5	
Rock Wren			2
Ruddy Duck		7	
Sage Thrasher	2		
Sagebrush Sparrow	2		16
Savannah Sparrow	2		
Say's Phoebe	1	22	1
Semipalmated Plover		1	
Spotted Sandpiper		10	
Tree Swallow	7		
Unidentified			1
Unidentified raptor			1
Unidentified Sparrow			3

Unidentified Swallow	1		
Unidentified Waterfowl	10		
Violet-green Swallow	16	20	
Western Kingbird		10	
Western Tanager		4	
Western Wood-Pewee		3	
Wilson's Phalarope		2	
Yellow-headed Blackbird	7	21	
Yellow-rumped Warbler		1	
Grand Total	385	426	467

Table 2. Summary of observations at the ponds May 2016. Results of two survey cycles are combined.


Species	NORTH	MIDDLE	SOUTH
American Coot			5
American Pipit	1		
Black-necked Stilt		1	2
Bonaparte's Gull	2		2
California Gull	38		1
Canvasback			2
Eared Grebe	9	12	38
Gadwall			1
Green-winged Teal	6		5
Horned Grebe		1	
Killdeer		1	
Lesser Scaup			1
Mallard		2	
Northern Shoveler			2
Red-necked Phalarope			9
Ring-Billed Gulls			4
Ruddy Duck	8	4	8
Semipalmated Sandpiper	4		
Spotted Sandpiper	2	12	3
Tree Swallows		2	
Western Sandpiper	5		
White-Faced Ibis			4
Wilson's Phalarope			7
Wilson's Snipe	1		
Yellow-headed Blackbird		2	
Grand Total	76	37	94

Figure 1. May 2016 mortalities




Appendix 1: GBBO May 2016 Mortalities

Costa's Hummingbird


Carcass ID #:	HUMM_246050420160758	
Date:	5/4/16	
Location:	Facility plot 246	
Coordinates in Nad83:	11S 468002 4232124	
Condition:	Intact	
Comments:	Unknown cause of death	

Unknown avian


Carcass ID #:	UNK_155050720160950	
Date:	5/7/16	
Location:	Facility plot 155	
Coordinates in Nad83:	11S 467479 4231955	
Condition:	Body parts/feathers only	
Comments:	Unknown cause of death.	

May 2016 Mortalities


Eurasian Collared-Dove

Carcass ID #:	ECDO_NE05172016759	
Date:	5/17/16	
Location:	NE Fence line	
Coordinates in Nad83:	11S 469250 4233547	
Condition:	Feather spot	
Comments:	Cannot determine cause of death	

Mourning Dove

Carcass ID #:	DOVE_NW051716734	
Date:	5/17/2016	
Location:	NW Fence line	
Coordinates in Nad83:	11S 466693 4232722	
Condition:	Feather Spot	
Comments:	Unknown cause of death	

Eurasian Collared-Dove

Carcass ID #:	UNK_SE051720160842	
Date:	5/17/2016	
Location:	SE Fence line	
Coordinates in Nad83:	11S 467336 4231245	
Condition:	Feather spot	
Comments:	Cause of death could not be determined	

Unknown passerine

Carcass ID #:	UNK_431052520161026	
Date:	5/25/16	
Location:	Facility plot 431	
Coordinates in Nad83:	11S 469208 4233017	
Condition:	Body parts	
Comments:	Bottom portion of bird. Cause of death could not be determined, but predation/ scavenging occurred.	

Grasshopper mouse 1


Carcass ID #:	SGMO_SOPO0504201609 18
Date:	5/4/2016
Location:	South ponds
Coordinates in Nad83:	11S 467403 4231192
Condition:	Body Parts
Comments:	Coyote tracks nearby

**Grasshopper mouse 2**

Carcass ID #:	NGMO_322050420161155
Date:	5/4/2016
Location:	Facility plot 322
Coordinates in Nad83:	11S 468579 4232217
Condition:	Intact
Comments:	Unknown cause of death




Unknown mouse

Carcass ID #:	ROD_326050520160732	
Date:	5/5/2016	
Location:	Facility plot 326	
Coordinates in Nad83:	11S 468479 4233058	
Condition:	Scavenged/ Late decomposition	
Comments:	Unknown cause of death	

Unidentified kangaroo rat

Carcass ID #:	KARA_16005192016937	No image available
Date:	5/19/2016	
Location:	Facility plot 160	
Coordinates in Nad83:	11S 467406 4232855	
Condition:	Intact, desiccated	
Comments:	Unknown cause of death	

Ord's kangaroo rat

Carcass ID #:	ORKR_199051820160906	
Date:	5/18/16	
Location:	Facility plot 199	
Coordinates in Nad83:	11S 466473 4232250	
Condition:	Fresh, intact	
Comments:	No apparent cause of death	

Merriam's kangaroo rat

Carcass ID #:	KARA_NE051720160758	
Date:	5/17/2016	
Location:	NE Fence line	
Coordinates in Nad83:	11S 468371 4231209	
Condition:	Body parts	
Comments:	Unknown cause of death	