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California Energy Commission
Dockets Unit
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Subject: **PALEN SOLAR HOLDINGS, LLC'S SPRING 2013 AVIAN SURVEY RESULTS**
PALEN SOLAR ELECTRIC GENERATING SYSTEM
DOCKET NO. (09-AFC-7C)

Enclosed for filing with the California Energy Commission is the electronic version of **PALEN SOLAR HOLDINGS, LLC'S SPRING 2013 AVIAN SURVEY RESULTS**, for Palen Solar Electric Generating System (09-AFC-7C).

Sincerely,

Marie Fleming

PALEN SOLAR ELECTRIC GENERATING FACILITY
SPRING 2013 AVIAN SURVEY RESULTS

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ABOUT BLOOM BIOLOGICAL, INC.

For over 35 years, Bloom Biological, Inc. (BBI) has provided biological consulting services to large and small clients. Our resume of services includes raptor and endangered species research, biological monitoring, impact assessment and permitting, conservation planning and geospatial analysis. Our innovative approach to our work has provided solutions to complex problems for clients and projects throughout a range of industries including alternative energy, residential development and the public sector. Collectively, the management and staff of BBI hold permits or memoranda of understanding for participating in the conservation and recovery of more than a dozen endangered or threatened species, as well as numerous other special-status species, in California and the western United States. Over the years, BBI has established an impeccable relationship with the resource agencies, project proponents, and environmental organizations by skillfully balancing the needs and objectives of land planning, resource conservation, and the public interest. In addition to our work in southern California, BBI biologists have worked throughout the western United States, and in Alaska, Peru, Ecuador, Belize, Costa Rica, India, Southeast Asia, and the western Pacific. BBI is a certified SBE, WBE and MBE.

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1.0 INTRODUCTION

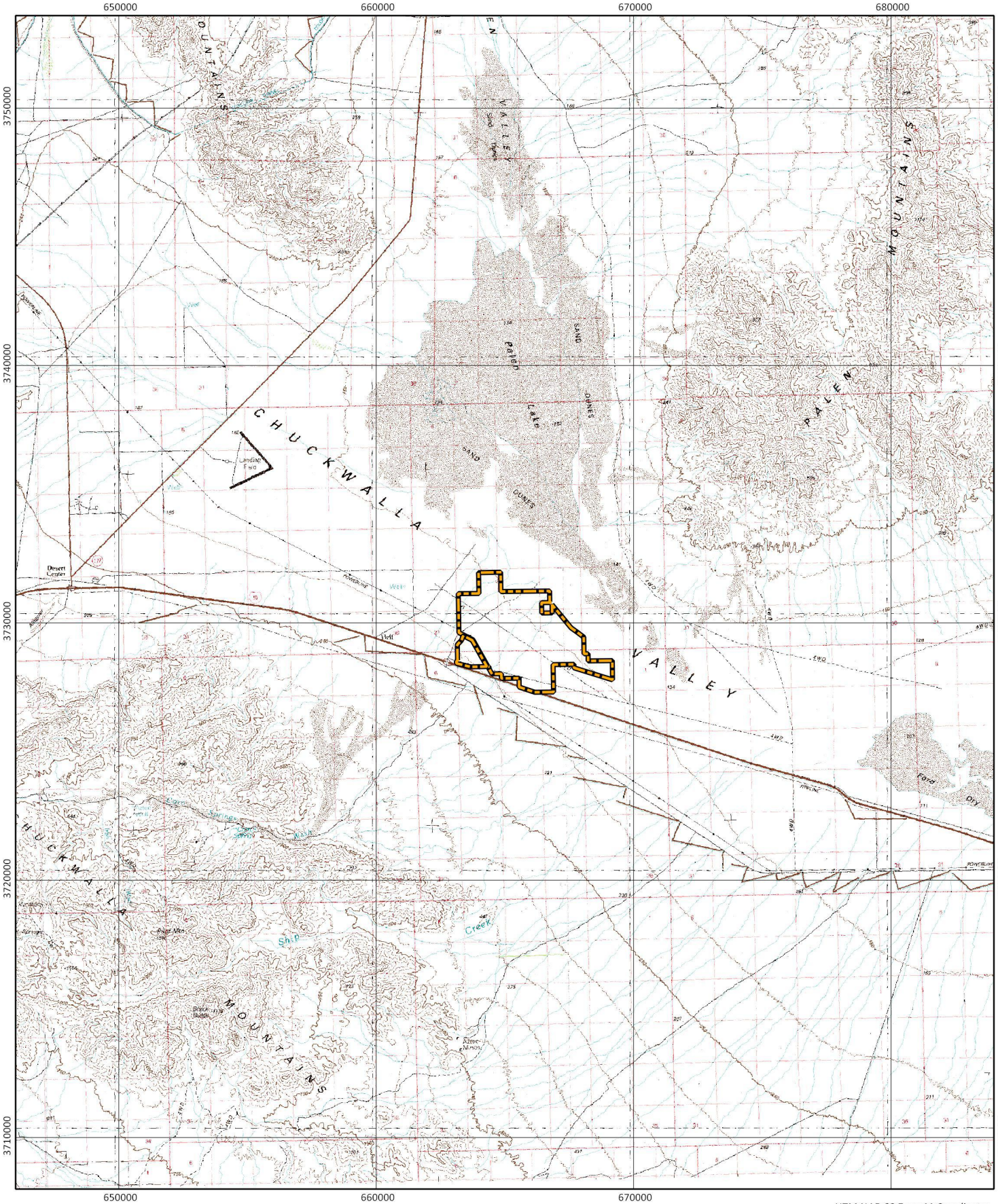
Bloom Biological Inc. (BBI) was retained by Palen Solar Holdings to conduct Spring 2013 pre-construction avian field surveys for the Palen Solar Project located in the Chuckwalla Valley, Riverside County, California, for purposes of providing data to inform the development of a Bird and Bat Conservation Plan (BBCS). The surveys conducted were based on recommendations for Tier 3 field studies described in the U.S. Fish and Wildlife Service Land-Based Wind Energy Guidelines, in addition to guidance provided by the Renewable Energy Action Team (REAT) agencies specifically for the Palen Solar Project.

On May 29, 2013, BBI provided Palen Solar Holdings with a summary of Spring, 2013 avian survey results, which was based on a preliminary dataset that had not yet been proofed or subjected to quality assurance procedures. The present report provides the complete methods for Spring, 2013 surveys and quantitative results based on the complete dataset after proofing and quality assurance measures. The results reported herein differ slightly from those reported in the Spring summary report, mainly because some survey data had not yet been entered at the time the May 29 report was prepared.

2.0 STUDY AREA DESCRIPTION

The "Study Area" in this report includes the proposed Project Site (see Exhibit 1) and all lands within 0.6 miles (1 kilometer) of the Project Site. The Project Site is comprised of approximately 3,793 acres (1,535 hectares) located just north of Interstate 10 near the Chuckwalla Valley Road exit. On the Public Land Survey System, the Project Site is located in all or portions of Sections 27, 28, 29, 30, 31, 32, 33 and 34 of Township 5 South, Range 17 East and Sections 2, 3, 4, 5 and 6 of Township 6 South, Range 17 East of the U.S. Geological Survey's 7.5-minute *Sidewinder Well* quadrangle. Elevations on the Project Site range from approximately 440 feet (134 meters) above mean sea level near the northeastern boundary to 680 feet (207 meters) above mean sea level near the southwestern boundary. There are no significant terrain features on the Project Site, and terrain decreases gradually from southwest to the northeast.

The Project Site lies primarily to the north of Interstate Highway 10, but the surrounding buffer extends up to 1 kilometer south of the interstate. The Project Site and Study Area lie within the Chuckwalla Valley and are bordered to the south by the Chuckwalla Mountains, to the north by the Coxcomb Mountains, and to the northeast by the Palen Mountains. The Palen Dry Lake lies immediately along the northern edge of the Project Site. Large alluvial plains extend from the mountain ranges leading down slope to sand dune complexes and dry lakes. The dominant vegetative cover type on the Project Site is Sonoran Creosote Scrub. Several dry desert washes with sparse to moderately dense areas of Desert Dry Wash Woodland exist within and surrounding the Project Site, generally running from southwest to northeast with the direction of dry or ephemeral washes. Immediately adjacent and on the northwest side of the Project Site is a privately owned palm plantation, approximately 530 acres (215 ha) in area. Situated within this privately owned land are three agricultural ponds, each less than 2.5 acres (1 ha) in area. Privately owned lands within the Study Area, including the palm plantation and agricultural ponds, were not surveyed during the Spring season.



UTM NAD 83 Zone 11 Coordinates
Author: Marcus C. England
Map Date: 19 July 2013
Base Map: US Geological Survey

Project Site

0 1 2 3 mi
1:200000

Exhibit 1: Vicinity Map

Palen Solar Electric Generating System | Riverside County, California

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Figure 1. Study area location relative to the state (left) and county (right)

3.0 METHODS

BBI conducted Bird Use Count (BUC) surveys, Small Bird Count (SBC) surveys and Mist Net (MN) surveys for four weeks between the dates of April 8 and May 5, 2013 on public lands within and adjacent to the Project Site. The purpose of, and methodologies for each survey type are detailed below. The date, start and end times, weather conditions, and name of surveying biologist(s) for each survey is shown in Appendix A.

3.1 Small Bird Count Surveys

SBC surveys were conducted to evaluate the use of the Project footprint and surrounding areas by resident and migrant passerine and other small and medium-sized birds, though larger birds and raptors were recorded as well. A total of 120 SBC stations was established across an area encompassing the project footprint plus a 0.6 mile (1 kilometer) buffer (Exhibit 2).

SBC surveys were conducted between 15 minutes prior to sunrise and 6 hours after sunrise, to maximize the probability of detecting target species, as this encompasses the most active time of day for passerine birds, particularly in desert habitats. The order in which stations were surveyed was rotated weekly such that each station was surveyed at different times of the morning. In addition, biologists rotated between observation points to ensure that all points were surveyed roughly equally by different biologists.

The 120 Spring SBC count stations were arranged along 9 survey transects and provided coverage of the major habitat types present within the project footprint and surrounding 0.6 mile (1 kilometer) buffer (Exhibit 2). A complete list of SBC stations and the percent composition by vegetation cover type within a 110 yard (100-meter) radius area around each station is presented in Appendix B, Table 10. Vegetation cover types were generated using GIS software and are based on habitat mapping conducted by AECOM during 2009, and parts of SBC stations 119 and 120 fell outside of the mapped area and are undescribed in the table but consist primarily of Sonoran Creosote Scrub habitat. All stations were separated by a distance of at least 270-380 yards (250-350 meters) to ensure independence of observations. Station locations were chosen by first creating transect routes that passed through desired habitats such as Desert Dry Wash Woodland, Un-vegetated Ephemeral Dry Wash Upland and Sonoran Creosote Bush Scrub, as well as other less well-represented habitat types present within the survey area. An effort was made to establish transects on public lands immediately adjacent to the privately owned palm plantation to the northwest of the Project Site. Once transects were established a series of random distances between 270-380 yards (250-350 meters) was generated and stations were placed along the transects at these sequential distances to ensure an element of randomness was incorporated into station placement. Under this design, the total area surveyed from the 120 SBC stations comprises at least 9.8% (1.5 mi^2 or 3.8 km^2) of the area occupied by the project

boundary and 0.6 mile (1 km) buffer (14.8 mi^2 or 38.34 km^2). This conservatively assumes a survey radius of 110 yards (100 meters) around each station, though many of the detections occurred at greater distances.

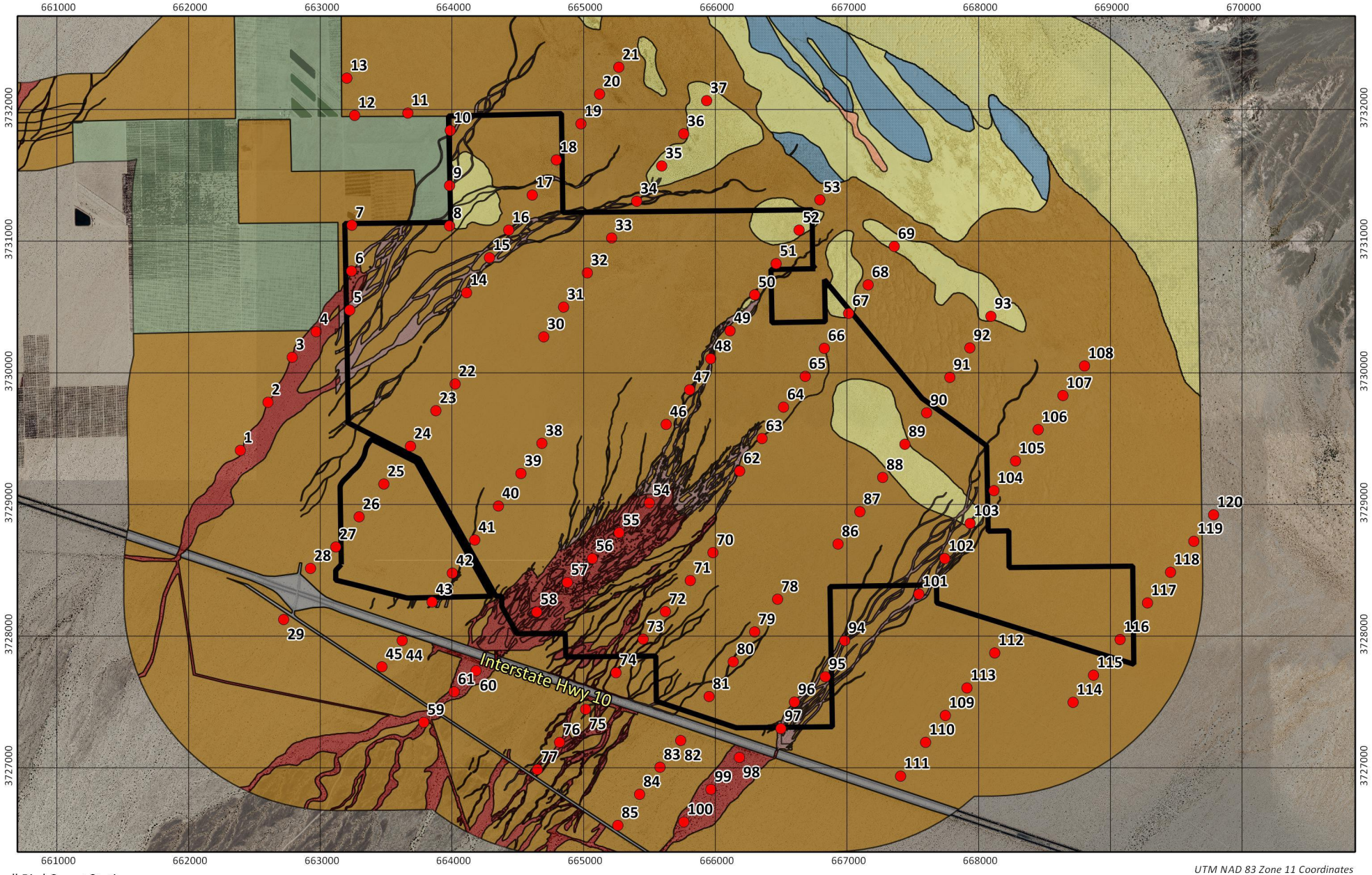
During SBC surveys, qualified avian biologists began noting birds detected by sight and sound immediately after arriving at the station and for 10 minutes thereafter. For each bird detected, biologists recorded the following information: species, sex (if known), age (if known), mode of detection (visual, song, call, other), distance from station, direction from station (cardinal and inter-cardinal), number of individuals (if moving in a group), the number of minutes (rounded up to the nearest whole minute) present within 100 meters (whether perched or flying; maximum of 10), and the total number of minutes observed *flying* at heights between ground level and 50 meters, 50-200 meters, or above 200 meters. Anecdotal observations indicating breeding activity were also noted, including whether the birds were observed carrying nesting material or food, or attending nests or fledglings. The coordinates and status of all nests were recorded. Biologists also recorded all sightings of Black-tailed Jackrabbit (*Lepus californicus*) and Desert Cottontail (*Sylvilagus audubonii*) while walking along transects between point count stations. Though bird of all sizes and at all distances from the observer were recorded, an emphasis was placed on detecting all birds within 110 yards (100 meters) of the observer.

Using rangefinders and landmarks, all surveyors were trained in estimating distances across the range expected for these surveys. Surveyors were also provided with a rangefinder when conducting surveys, so they could identify the distances to various landmarks around each station and use the landmarks accordingly in distance estimates.

3.2 Bird Use Count Surveys

The focus of BUC surveys was to evaluate the use of the Project footprint and surrounding areas by medium to large resident and migratory birds, including Golden Eagles (A*quila chrysaetos*) and other raptors. Six BUC observation points (O.P.s) were established across an area encompassing the Project Site plus a 0.6 mile (1 kilometer) buffer (Exhibit 3). Two of the O.P.s (O.P.s #3 and #5) were placed within 220 yards (200 meters) of the proposed solar tower sites for the project. A list of BUC O.P.s and percent composition by vegetation cover type within the 0.5-mile (800-meter) radius survey area of each is presented in Appendix B, Table 11. As with SBC stations, vegetation cover types were generated using GIS software and are based on habitat mapping conducted by AECOM during 2009, and a portion of the BUC O.P. # 6 survey area fell outside of the mapped area and is undescribed in the table. This undescribed area is comprised mainly of Sonoran Desert Creosote scrub, but also includes a section of Dry Woodland Wash near the periphery. Though bird detections were recorded at greater distances, quantitative data were recorded for detections occurring within a 0.5-mile (800-meter) radius of BUC O.P.s. Under this design, the total area surveyed from the six BUC observation points (4.7 mi^2 or 12.1 km^2) comprised 31.5% of the area within the Project Site boundary plus a 0.6 mile (1 km) buffer (14.8 mi^2 or 38.34 km^2). The coverage of the Study Area is not homogeneous, as more O.P.s were allocated on the western side of the project footprint where a palm plantation and several agricultural ponds provide roosting and foraging habitat for migratory raptors, shorebirds and waterfowl.

For BUC surveys, each observation point was manned by a qualified avian biologist for 8 hours per day, 4 days per week. The starting time for surveys was rotated among the days of each week such that approximately ¼ of the 8-hour long surveys began at sunrise, ½ began 4 hours prior to mid-day and ¼ began 8 hours before sunset; thus ensuring that all stations were surveyed at all times of day, but with the focus being on the midday periods when raptors were expected to be most active. In addition, biologists rotated between observation points to ensure that all points were surveyed at various times of day equally by different biologists within a given season.



Small Bird Count Stations

Vegetation Communities (AECOM)
- *Active Desert Dunes*
- *Agriculture*
- *Desert Dry Wash Woodland*

Vegetation Communities (AECOM - continued)
- *Desert Sink Scrub*
- *Developed*
- *Dry Lake Bed*
- *Sonoran Creosote Bush Scrub*
- *Stabilized and Partially Stabilized Desert Dunes*
- *Unvegetated Ephemeral Dry Wash*

UTM NAD 83 Zone 11 Coordinates
Author: Marcus C. England
Map Date: 19 July 2013
Base Map: US Department of Agriculture

0 2000 4000 6000 ft
1:40000

Exhibit 2: Small Bird Count Stations

Palen Solar Electric Generating System | Riverside County, California

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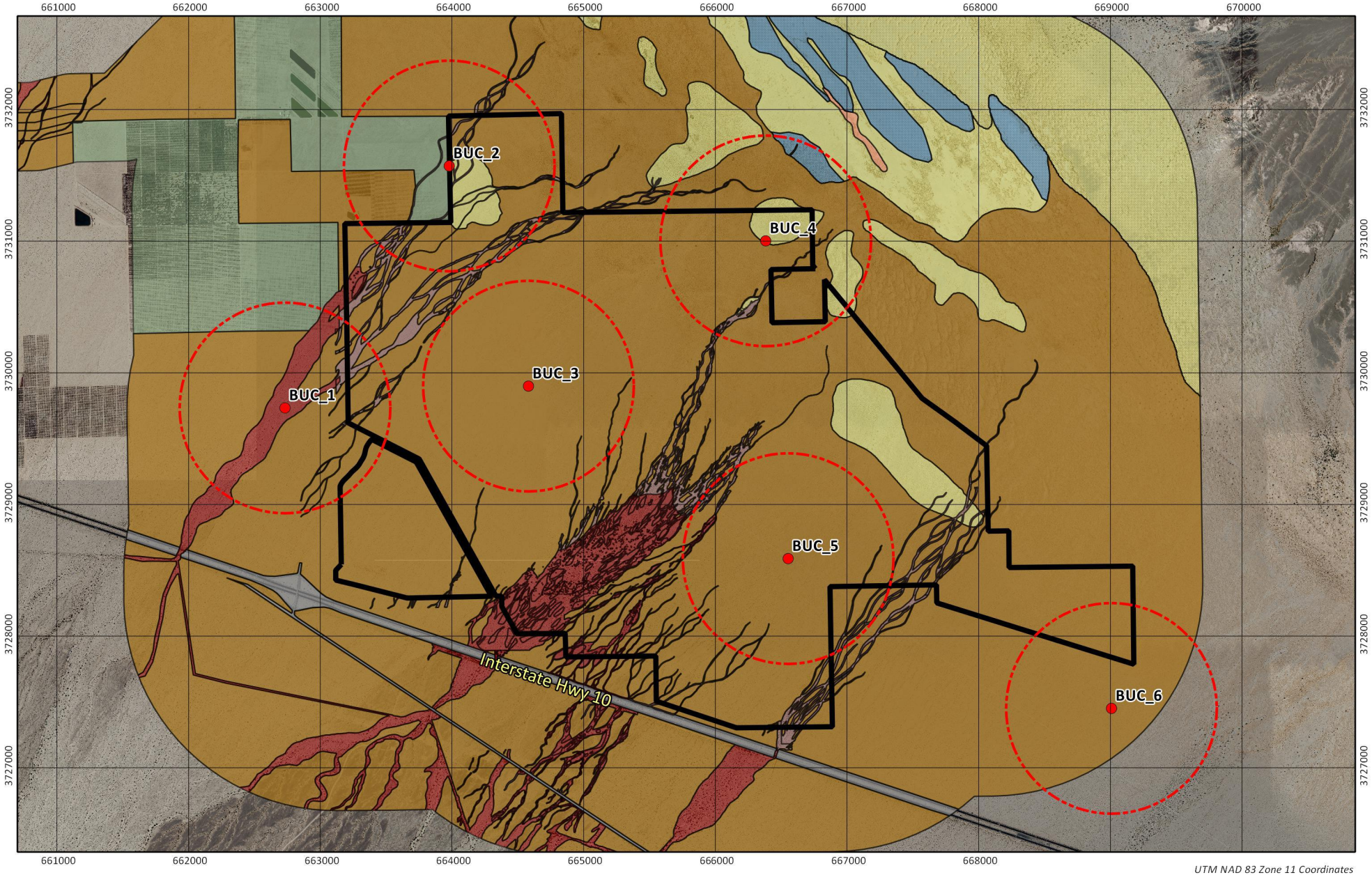

Bird Use Count Stations

800 Meter BUC Station Buffer

Vegetation Communities (AECOM)
- *Active Desert Dunes*
- *Agriculture*
- *Desert Dry Wash Woodland*
- *Desert Sink Scrub*
- *Developed*

Vegetation Communities (AECOM - continued)
- *Dry Lake Bed*
- *Sonoran Creosote Bush Scrub*
- *Stabilized and Partially Stabilized Desert Dunes*
- *Unvegetated Ephemeral Dry Wash*

UTM NAD 83 Zone 11 Coordinates
Author: Marcus C. England
Map Date: 21 July 2013
Base Map: US Department of Agriculture

0 2000 4000 6000 ft
1:40000

Exhibit 3: Bird Use Count Stations

Palen Solar Electric Generating System | Riverside County, California

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During BUC surveys, each biologist remained at the station for 8 consecutive hours (weather permitting) and recorded the following information for all focal species, which included all raptors, and other birds larger than an American Crow (*Corvus brachyrhynchos*) that passed within 1.2 miles (2 kilometers) of the observer (surveying biologists were instructed to record Golden Eagle observations at all distances): time, observation point ID, species, distance and direction from surveyor, estimated height above ground level (agl), flight direction and number of individuals (if in moving in a group). Additional information regarding flight movements was collected for focal species that passed within 0.5 miles (800 meters) of the observer, including the following (as pertains to behaviors within this distance range only): flight types observed, minimum height (agl), maximum height (agl), total number of minutes spent flying at heights of less than the height of the proposed towers. All non-focal species observations within the 0.5-mile (800-meter) survey area were summarized on a separate form and the following summary data were collected on an hourly basis: number of individuals that passed within 0.5 miles (800 meters) of the observer, and the number of minutes spent flying at 0-49 and > 50 meters in height.

Using rangefinders and landmarks, all BUC surveyors were trained in estimating distances across the range expected for these surveys. Surveyors were also provided with a rangefinder when conducting surveys, so they could measure the distances to targets (when possible) and various landmarks around each station and use the landmarks accordingly in distance estimates.

3.3 Mist Net Surveys

Mist net surveys were conducted for 8 days at 8 mist-net stations, with each mist-net (MN) station consisting of net arrays placed around 3 adjacent SBC point count stations in the same habitat type. A total of 12 standard 2.6 x 12 meter mist nets was used daily at each MN station, with 4 nets placed within 50-100 meters (to the north, south, east, and west, respectively) of each of the three SBC stations that comprised the single MN station. The 8 MN stations were equally divided among habitat types, with 4 each in Desert Dry Wash Woodland and Sonoran Creosote Scrub, and equally divided in regard to areas of proposed Project permanent impact, with 4 MN stations in areas of proposed permanent disturbance and 4 in areas adjacent to proposed permanent disturbance.

MN surveys were conducted twice per week, with one survey at an MN station in Desert Dry Wash Woodland and the other in Sonoran Creosote Scrub habitat. Each day, three biologists worked together to survey one MN station from sunrise until 1100h unless precipitation, extreme temperatures, or high winds caused the nets to be closed early.

All birds captured in nets were removed carefully, banded with a unique aluminum Fish and Wildlife Service leg band and released. Information recorded for all captures included: station, date, time, bander's name, band number, molt, level of stored fat, and feather/plumage characteristics and where possible, age and sex.

4.0 RESULTS AND DISCUSSION

4.1 Small Bird Count Surveys

With one exception, each of the 120 SBC point count stations was surveyed once per week during the four-week period. SBC station number 62 was not surveyed during the first week due to an oversight, and as a result only three surveys were conducted at this station.

In total, 73 species of birds were observed at all distances during SBC surveys, though 56 of these species were relatively uncommon, with 10 or fewer individuals detected over the course of the Spring SBC survey period. A complete list of bird species observed during SBC surveys, including information regarding frequency of detection and minutes spent flying at different heights within the survey area is displayed in Table 1. The most frequently observed species was the Turkey Vulture (308 detections), followed by the Horned Lark (240 detections) and Cliff Swallow (*Petrochelidon pyrrhonota*; 205 detections). Detection rates varied among SBC stations and tended to be

higher in Desert Dry Wash Woodland and particularly near Agricultural habitats (e.g., near palm plantations on the west and northwest side of the site). Variation among SBC stations in the total number of individuals (of all species) detected and the number of minutes spent flying at different heights, as well as the total number of species detected at each station, can be found in Table 2. A visual representation of relative avian abundance among SBC stations (total number of individuals observed at each station) can be found in Exhibit 4. The sites where avian abundance was highest also tended to be the sites with the greatest avian diversity, and these stations were generally concentrated along the western edge of the site, near agricultural habitats, and along the southern edge of the site and the Interstate 10 corridor, where vegetation density in Desert Dry Wash Woodland habitat is greater (particularly on the south side of the interstate).

Several shorebird and waterfowl species were detected during Spring SBC surveys, though not in high numbers. All but two of the shorebird and waterfowl observations occurred at SBC stations # 7 and #12, which are located near agricultural ponds on private lands along the northwestern edge of the Project Site. The two observations that occurred elsewhere included observations of one Greater Yellowlegs (*Tringa melanoleuca*) that passed about 300 meters southwest of SBC station #23 flying approximately 80 meters above ground, and one Least Sandpiper (*Calidris minutilla*) that passed about 60 meters southeast of SBC station # 93 flying at about 15 meters above the ground.

Table 1. SBC Survey Species Abundance and Use

The following table lists all avian species detected by BBI biologists during Spring SBC Surveys. Measures of abundance and use provided for each species include the following: (1) total number of individuals detected at all distances (# All Distances), (2) total number of individuals detected within the 100- meter radius survey area (# in 100 M), (3) average number of individuals detected within the survey area per 10-minute survey (# in 100 M/survey), (4) average number of minutes spent flying or perched within the survey area per survey (minutes in 100 M/survey), (5) average number of minutes spent flying between 0-49 meters above ground level (agl) and within the survey area per survey (minutes 0-49 M/survey), (6) average number of minutes spent flying 50-200 meters agl and within the survey area per survey (Minutes 50-200 M/survey), and (7) minutes spent flying above 200 meters agl and within the survey area per survey (Minutes over 200 M/survey). The sum of values for variables related to flight height will not always be equal to 'Minutes in 100 M/survey' because that variable includes time spent perching by the species.

Common Name	Scientific Name	# All Distances	# In 100 M	# in 100 M/survey	Minutes in 100 M/survey	Minutes 0-49 M/survey	Minutes 50-200 M/survey	Minutes over 200 M/survey
Bufflehead	*Bucephala albeola*	1	0	0.00	0.00	0.00	0.00	0.00
Gambel's Quail	*Callipepla gambelii*	10	6	0.03	0.18	0.11	0.00	0.00
Snowy Egret	*Egretta thula*	1	0	0.00	0.00	0.00	0.00	0.00
Turkey Vulture	*Cathartes aura*	308	13	0.07	0.22	0.14	0.08	0.00
Northern Harrier	*Circus cyaneus*	1	1	0.01	0.01	0.00	0.01	0.00
Swainson's Hawk	*Buteo swainsoni*	36	6	0.03	0.03	0.02	0.02	0.00
Red-tailed Hawk	*Buteo jamaicensis*	27	1	0.01	0.01	0.01	0.00	0.00
Unidentified Hawk		6	0	0.00	0.00	0.00	0.00	0.00
American Kestrel	*Falco sparverius*	2	0	0.00	0.00	0.00	0.00	0.00
Prairie Falcon	*Falco mexicanus*	12	4	0.02	0.04	0.02	0.00	0.00
Semipalmated Plover	*Charadrius semipalmatus*	1	1	0.01	0.06	0.06	0.00	0.00
Killdeer	*Charadrius vociferus*	4	4	0.02	0.21	0.11	0.00	0.00
Spotted Sandpiper	*Actitis macularius*	3	1	0.01	0.06	0.06	0.00	0.00
Solitary Sandpiper	*Tringa solitaria*	1	1	0.01	0.03	0.00	0.00	0.00
Greater Yellowlegs	*Tringa melanoleuca*	2	1	0.01	0.06	0.00	0.00	0.00
Marbled Godwit	*Limosa fedoa*	2	2	0.01	0.02	0.01	0.00	0.00

Common Name	Scientific Name	# All Distances	# In 100 M	# in 100 M/survey	Minutes in 100 M/survey	Minutes 0-49 M/survey	Minutes 50-200 M/survey	Minutes over 200 M/survey
Western Sandpiper	*Calidris mauri*	11	11	0.06	0.54	0.20	0.00	0.00
Least Sandpiper	*Calidris minutilla*	6	3	0.02	0.12	0.12	0.00	0.00
Long-billed Dowitcher	*Limnodromus scolopaceus*	1	1	0.01	0.06	0.06	0.00	0.00
Unidentified Larus Gull		1	0	0.00	0.00	0.00	0.00	0.00
Eurasian Collared-Dove	*Streptopelia decaocto*	5	0	0.00	0.00	0.00	0.00	0.00
White-winged Dove	*Zenaida asiatica*	11	5	0.03	0.03	0.03	0.00	0.00
Mourning Dove	*Zenaida macroura*	47	17	0.09	0.11	0.10	0.01	0.00
Burrowing Owl	*Athene cunicularia*	4	0	0.00	0.00	0.00	0.00	0.00
Lesser Nighthawk	*Chordeiles acutipennis*	2	1	0.01	0.03	0.03	0.00	0.00
Vaux's Swift	*Chaetura vauxi*	10	10	0.06	0.06	0.06	0.00	0.00
White-throated Swift	*Aeronautes saxatalis*	4	3	0.02	0.02	0.02	0.00	0.00
Costa's Hummingbird	*Calypte costae*	3	3	0.02	0.05	0.02	0.00	0.00
Unidentified Hummingbird		4	3	0.02	0.02	0.02	0.00	0.00
Ladder-backed Woodpecker	*Picoides scalaris*	2	2	0.01	0.06	0.05	0.00	0.00
Hammond's Flycatcher	*Empidonax hammondii*	1	1	0.01	0.02	0.01	0.00	0.00
Gray Flycatcher	*Empidonax wrightii*	1	0	0.00	0.00	0.00	0.00	0.00
Unidentified Empidonax Flycatcher		1	1	0.01	0.01	0.01	0.00	0.00
Say's Phoebe	*Sayornis saya*	5	1	0.01	0.01	0.01	0.00	0.00
Ash-throated Flycatcher	*Myiarchus cinerascens*	31	18	0.10	0.18	0.11	0.00	0.00
Western Kingbird	*Tyrannus verticalis*	8	7	0.04	0.04	0.03	0.00	0.00
Loggerhead Shrike	*Lanius ludovicianus*	106	32	0.18	0.61	0.44	0.00	0.00
Warbling Vireo	*Vireo gilvus*	6	6	0.03	0.11	0.03	0.00	0.00
Common Raven	*Corvus corax*	91	12	0.07	0.07	0.06	0.01	0.00
Horned Lark	*Eremophila alpestris*	240	159	0.89	2.31	1.05	0.02	0.00
Tree Swallow	*Tachycineta bicolor*	49	48	0.27	0.27	0.25	0.02	0.00
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*	8	7	0.04	0.04	0.03	0.01	0.00
Cliff Swallow	*Petrochelidon pyrrhonota*	205	162	0.91	0.92	0.76	0.03	0.00
Barn Swallow	*Hirundo rustica*	57	29	0.16	0.16	0.16	0.01	0.00
Unidentified Swallow		86	0	0.00	0.00	0.00	0.00	0.00
Verdin	*Auriparus flaviceps*	137	107	0.60	3.54	1.81	0.00	0.00

Common Name	Scientific Name	# All Distances	# In 100 M	# in 100 M/survey	Minutes in 100 M/survey	Minutes 0-49 M/survey	Minutes 50-200 M/survey	Minutes over 200 M/survey
Cactus Wren	*Campylorhynchus brunneicapillus*	14	8	0.04	0.31	0.15	0.00	0.00
Northern Mockingbird	*Mimus polyglottos*	1	0	0.00	0.00	0.00	0.00	0.00
Le Conte's Thrasher	*Toxostoma lecontei*	23	5	0.03	0.11	0.11	0.00	0.00
European Starling	*Sturnus vulgaris*	22	1	0.01	0.06	0.06	0.00	0.00
Phainopepla	*Phainopepla nitens*	4	0	0.00	0.00	0.00	0.00	0.00
Orange-crowned Warbler	*Oreothlypis celata*	10	10	0.06	0.18	0.07	0.00	0.00
Nashville Warbler	*Oreothlypis ruficapilla*	4	4	0.02	0.09	0.02	0.00	0.00
Yellow Warbler	*Setophaga petechia*	1	1	0.01	0.02	0.01	0.00	0.00
Yellow-rumped Warbler	*Setophaga coronata*	32	30	0.17	0.41	0.22	0.00	0.00
Townsend's Warbler	*Setophaga townsendi*	6	6	0.03	0.05	0.04	0.00	0.00
Common Yellowthroat	*Geothlypis trichas*	2	1	0.01	0.01	0.01	0.00	0.00
Wilson's Warbler	*Cardellina pusilla*	38	34	0.19	0.64	0.37	0.00	0.01
Unidentified Warbler		4	3	0.02	0.02	0.02	0.00	0.00
Chipping Sparrow	*Spizella passerina*	3	3	0.02	0.06	0.01	0.00	0.00
Brewer's Sparrow	*Spizella breweri*	43	40	0.22	1.00	0.44	0.00	0.00
Black-throated Sparrow	*Amphispiza bilineata*	1	0	0.00	0.00	0.00	0.00	0.00
Savannah Sparrow	*Passerculus sandwichensis*	5	5	0.03	0.08	0.03	0.00	0.00
White-crowned Sparrow	*Zonotrichia leucophrys*	5	5	0.03	0.16	0.08	0.00	0.00
Unidentified Sparrow		3	0	0.00	0.00	0.00	0.00	0.00
Black-headed Grosbeak	*Pheucticus melanocephalus*	2	1	0.01	0.01	0.01	0.00	0.00
Red-winged Blackbird	*Agelaius phoeniceus*	4	3	0.02	0.07	0.06	0.01	0.00
Yellow-headed Blackbird	*Xanthocephalus xanthocephalus*	1	0	0.00	0.00	0.00	0.00	0.00
Brewer's Blackbird	*Euphagus cyanocephalus*	1	1	0.01	0.06	0.06	0.00	0.00
Great-tailed Grackle	*Quiscalus mexicanus*	60	12	0.07	0.23	0.08	0.00	0.00
Brown-headed Cowbird	*Molothrus ater*	2	2	0.01	0.01	0.01	0.00	0.00
Hooded Oriole	*Icterus cucullatus*	1	1	0.01	0.01	0.01	0.00	0.00
Bullock's Oriole	*Icterus bullockii*	6	5	0.03	0.08	0.03	0.00	0.00
Lesser Goldfinch	*Spinus psaltria*	9	5	0.03	0.03	0.02	0.01	0.00
Western Tanager	*Piranga ludoviciana*	1	0	0.00	0.00	0.00	0.00	0.00
Eared Grebe	*Podiceps nigricollis*	8	8	0.04	0.45	0.00	0.00	0.00
Osprey	*Pandion haliaetus*	1	0	0.00	0.00	0.00	0.00	0.00

Common Name	Scientific Name	# All Distances	# In 100 M	# in 100 M/survey	Minutes in 100 M/survey	Minutes 0-49 M/survey	Minutes 50-200 M/survey	Minutes over 200 M/survey
Blue-gray Gnatcatcher	*Polioptila caerulea*	6	6	0.03	0.10	0.02	0.00	0.00
Black-tailed Gnatcatcher	*Polioptila melanura*	42	37	0.21	1.03	0.77	0.00	0.00
House Finch	*Haemorhous mexicanus*	40	26	0.15	0.27	0.18	0.02	0.00
Unidentified Bird		17	1	0.01	0.01	0.01	0.00	0.00

Table 2. Variation among SBC Stations in Avian Abundance, Use and Diversity

The following table lists all 120 SBC point count stations surveyed by BBI biologists during Spring SBC Surveys. Measures of abundance, use, and diversity provided for each station include the following (for all species combined): (1) total number of individuals detected at all distances (# All Distances), (2) total number of individuals detected within the 100-meter survey area (# in 100 M), (3) number of 10-minute point count surveys conducted during spring season (# of surveys), (4) average number of individuals detected within the 100-meter survey area per 10-minute survey (# in 100 M/survey), (5) average number of minutes (summed across species) spent flying or perched within the survey area per survey (minutes in 100 M/survey), (6) average number of minutes (summed across species) spent flying between 0-49 meters above ground level (agl) and within the survey area per survey (minutes 0-49 M/survey), (7) average number of minutes (summed across species) spent flying 50-200 meters agl and within the survey area per survey (Minutes 50-200 M/survey), (8) average number of minutes spent flying (summed across species) above 200 meters agl and within the survey area per survey (Minutes > 200 M/survey), and (9) the total number of species observed (all distances) at the station across all surveys (# Species). The sum of values for variables related to flight height will not always be equal to 'Minutes in 100 M/survey' because that variable includes time the birds spent perching. Though counts were only 10-minutes in length, variables related to minutes may exceed 10 because they are representative of the total minutes for all individuals of all species combined.

SBC Station	# All Distances	# In 100 M	# of Surveys	# in 100 M/survey	Minutes in 100 M/survey	Minutes 0-49 M/survey	Minutes 50-200 M/survey	Minutes > 200 M/survey	# Species
1	20	14	4.00	3.50	11.25	7.50	0.00	0.00	7
2	23	20	4.00	5.00	13.25	3.25	1.25	0.00	9
3	23	20	4.00	5.00	17.25	10.25	1.25	0.00	11
4	31	24	4.00	6.00	17.25	7.25	0.00	0.00	12
5	29	19	4.00	4.75	15.00	8.75	3.00	0.00	8
6	22	10	4.00	2.50	14.50	4.00	0.25	0.00	9
7	78	64	4.00	16.00	105.00	52.00	0.00	0.00	29
8	45	15	4.00	3.75	5.75	5.25	0.50	0.00	10
9	54	19	4.00	4.75	21.25	1.25	0.25	0.00	6
10	31	9	4.00	2.25	3.25	1.25	0.00	0.00	6
11	23	9	4.00	2.25	4.50	1.50	0.00	0.00	9
12	50	6	4.00	1.50	3.25	0.50	0.00	0.00	8
13	35	6	4.00	1.50	3.50	1.75	0.00	0.00	7
14	11	2	4.00	0.50	0.75	0.50	0.00	0.00	5
15	10	3	4.00	0.75	1.50	0.75	0.00	0.00	6
16	12	1	4.00	0.25	0.25	0.25	0.00	0.00	7
17	15	8	4.00	2.00	2.25	2.00	0.00	0.00	8
18	4	1	4.00	0.25	0.50	0.25	0.00	0.00	2
19	10	6	4.00	1.50	2.00	1.75	0.00	0.00	5
20	7	0	4.00	0.00	0.00	0.00	0.00	0.00	4
21	16	11	4.00	2.75	4.00	2.75	0.00	0.00	7

SBC Station	# All Distances	# In 100 M	# of Surveys	# in 100 M/survey	Minutes in 100 M/survey	Minutes 0-49 M/survey	Minutes 50-200 M/survey	Minutes > 200 M/survey	# Species
22	6	2	4.00	0.50	2.50	1.75	0.00	0.00	3
23	8	2	4.00	0.50	0.50	0.50	0.00	0.00	4
24	19	2	4.00	0.50	0.75	0.50	0.25	0.00	5
25	3	2	4.00	0.50	2.75	2.75	0.00	0.00	1
26	15	2	4.00	0.50	1.75	0.50	0.00	0.00	6
27	19	2	4.00	0.50	0.50	0.50	0.00	0.00	6
28	29	3	4.00	0.75	0.75	0.50	0.25	0.00	9
29	18	4	4.00	1.00	1.00	0.75	0.00	0.00	6
30	4	0	4.00	0.00	0.00	0.00	0.00	0.00	4
31	9	0	4.00	0.00	0.00	0.00	0.00	0.00	4
32	7	4	4.00	1.00	2.25	2.25	0.00	0.00	5
33	7	2	4.00	0.50	0.50	0.50	0.00	0.00	3
34	7	1	4.00	0.25	0.25	0.25	0.00	0.00	3
35	18	5	4.00	1.25	1.25	1.25	0.00	0.00	6
36	12	3	4.00	0.75	0.75	0.75	0.00	0.00	5
37	27	17	4.00	4.25	4.25	4.00	0.00	0.00	7
38	16	5	4.00	1.25	1.25	1.25	0.00	0.00	8
39	11	6	4.00	1.50	2.50	1.00	0.25	0.00	6
40	20	1	4.00	0.25	0.25	0.00	0.25	0.00	3
41	5	2	4.00	0.50	2.75	2.50	0.00	0.00	3
42	21	1	4.00	0.25	0.50	0.25	0.00	0.00	4
43	16	3	4.00	0.75	3.25	0.25	0.00	0.00	7
44	10	1	4.00	0.25	0.25	0.25	0.00	0.00	8
45	7	0	4.00	0.00	0.00	0.00	0.00	0.00	6
46	7	6	4.00	1.50	3.00	1.25	0.00	0.00	5
47	6	2	4.00	0.50	0.50	0.00	0.00	0.00	5
48	14	12	4.00	3.00	16.25	12.75	0.00	0.00	3
49	11	3	4.00	0.75	0.75	0.75	0.00	0.00	5
50	6	4	4.00	1.00	2.50	2.50	0.00	0.00	4
51	9	1	4.00	0.25	2.50	2.50	0.00	0.00	2
52	4	2	4.00	0.50	0.50	0.50	0.00	0.00	3
53	6	5	4.00	1.25	1.25	1.00	0.00	0.00	3
54	10	7	4.00	1.75	8.75	0.75	0.00	0.00	6
55	13	9	4.00	2.25	9.75	7.75	0.25	0.00	8
56	34	20	4.00	5.00	18.00	9.75	0.00	0.00	12
57	20	17	4.00	4.25	19.00	16.75	0.00	0.00	8
58	29	23	4.00	5.75	18.75	2.75	0.00	0.00	8
59	40	35	4.00	8.75	40.75	26.50	0.00	0.00	13
60	33	32	4.00	8.00	36.50	23.00	0.00	0.00	10
61	40	36	4.00	9.00	28.00	13.50	0.00	0.25	15
62	5	2	3.00	0.67	1.33	0.67	0.00	0.00	3
63	11	1	4.00	0.25	0.50	0.50	0.00	0.00	4
64	14	0	4.00	0.00	0.00	0.00	0.00	0.00	2
65	5	0	4.00	0.00	0.00	0.00	0.00	0.00	2
66	9	4	4.00	1.00	1.25	1.00	0.00	0.00	6
67	4	2	4.00	0.50	0.50	0.50	0.00	0.00	2
68	11	10	4.00	2.50	14.50	14.25	0.00	0.00	6

SBC Station	# All Distances	# In 100 M	# of Surveys	# in 100 M/survey	Minutes in 100 M/survey	Minutes 0-49 M/survey	Minutes 50-200 M/survey	Minutes > 200 M/survey	# Species
69	2	0	4.00	0.00	0.00	0.00	0.00	0.00	2
70	9	7	4.00	1.75	1.75	1.50	0.00	0.00	5
71	5	2	4.00	0.50	0.75	0.50	0.00	0.00	4
72	5	1	4.00	0.25	0.25	0.00	0.00	0.00	5
73	7	5	4.00	1.25	2.00	0.75	0.00	0.00	5
74	12	8	4.00	2.00	2.00	1.75	0.00	0.00	6
75	38	27	4.00	6.75	16.25	15.75	0.00	0.00	11
76	10	6	4.00	1.50	2.25	1.50	0.00	0.00	5
77	56	53	4.00	13.25	15.75	7.00	0.00	0.00	9
78	22	0	4.00	0.00	0.00	0.00	0.00	0.00	5
79	12	6	4.00	1.50	2.50	1.50	0.00	0.00	7
80	7	2	4.00	0.50	0.50	0.00	0.00	0.00	4
81	33	19	4.00	4.75	4.75	4.25	0.50	0.00	6
82	9	7	4.00	1.75	1.75	1.75	0.00	0.00	5
83	14	6	4.00	1.50	1.50	1.25	0.25	0.00	7
84	10	2	4.00	0.50	0.50	0.25	0.00	0.00	5
85	13	1	4.00	0.25	1.25	0.00	0.00	0.00	8
86	7	1	4.00	0.25	0.25	0.25	0.00	0.00	3
87	7	3	4.00	0.75	1.00	0.75	0.25	0.00	5
88	24	5	4.00	1.25	1.25	1.25	0.00	0.00	8
89	19	10	4.00	2.50	2.50	2.50	0.00	0.00	6
90	15	9	4.00	2.25	4.50	2.25	0.00	0.00	7
91	10	2	4.00	0.50	0.50	0.50	0.00	0.00	6
92	19	9	4.00	2.25	3.00	2.75	0.25	0.00	6
93	8	4	4.00	1.00	1.75	1.50	0.25	0.00	4
94	4	2	4.00	0.50	0.50	0.25	0.00	0.00	2
95	5	1	4.00	0.25	0.25	0.25	0.00	0.00	2
96	9	6	4.00	1.50	5.00	1.00	0.00	0.00	5
97	20	19	4.00	4.75	5.00	4.25	0.00	0.00	4
98	26	23	4.00	5.75	25.25	13.25	0.00	0.00	9
99	16	10	4.00	2.50	12.25	6.50	0.00	0.00	6
100	39	34	4.00	8.50	47.50	15.50	0.25	0.00	11
101	9	5	4.00	1.25	3.75	3.50	0.25	0.00	5
102	2	1	4.00	0.25	0.25	0.25	0.00	0.00	2
103	4	2	4.00	0.50	0.50	0.25	0.25	0.00	3
104	3	1	4.00	0.25	0.25	0.25	0.00	0.00	1
105	2	1	4.00	0.25	2.00	0.00	0.00	0.00	2
106	36	35	4.00	8.75	8.75	8.75	0.00	0.00	2
107	6	3	4.00	0.75	0.75	0.75	0.00	0.00	4
108	6	3	4.00	0.75	0.75	0.75	0.25	0.00	4
109	8	4	4.00	1.00	5.25	3.25	0.00	0.00	3
110	9	7	4.00	1.75	2.50	1.50	0.00	0.00	4
111	25	7	4.00	1.75	7.25	6.75	0.00	0.00	2
112	10	6	4.00	1.50	1.50	1.50	0.00	0.00	4
113	13	5	4.00	1.25	3.25	0.75	0.00	0.00	5
114	1	0	4.00	0.00	0.00	0.00	0.00	0.00	1
115	10	2	4.00	0.50	2.00	0.00	0.00	0.00	4

SBC Station	# All Distances	# In 100 M	# of Surveys	# in 100 M/survey	Minutes in 100 M/survey	Minutes 0-49 M/survey	Minutes 50-200 M/survey	Minutes > 200 M/survey	# Species
116	7	0	4.00	0.00	0.00	0.00	0.00	0.00	3
117	1	0	4.00	0.00	0.00	0.00	0.00	0.00	1
118	2	1	4.00	0.25	0.25	0.25	0.00	0.00	2
119	5	2	4.00	0.50	1.25	0.25	0.25	0.00	2
120	5	1	4.00	0.25	0.25	0.25	0.00	0.00	5

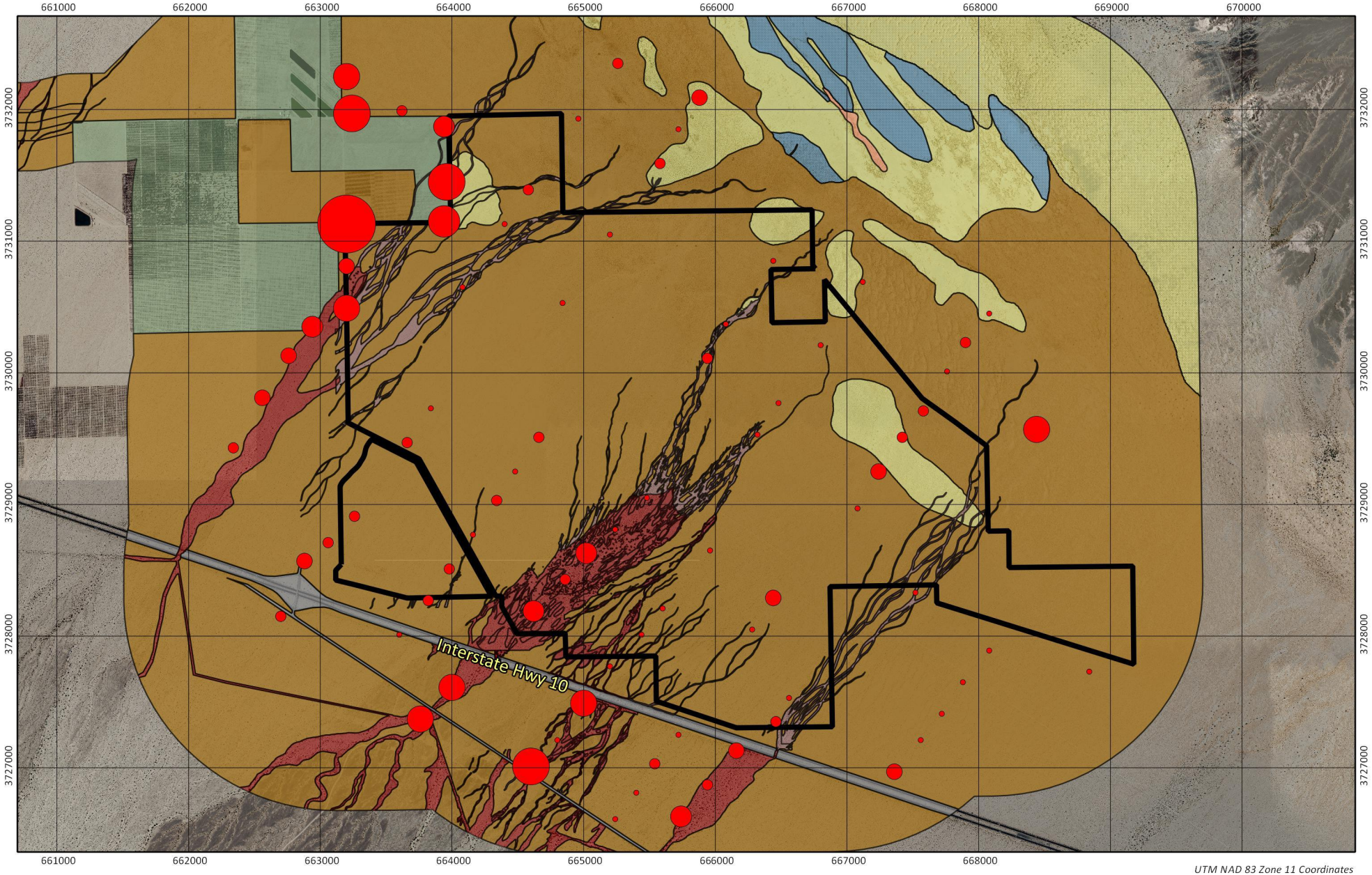
4.2 Bird Use Count Surveys

Each BUC station was surveyed 16 times (4 times per week) between April 8 and May 4, 2013. Due to low visibility or otherwise poor conditions seven surveys were less than 8 hours in duration, but none of these was shorter than 6.5 hours. Surveys were conducted regardless of wind speed, and the average wind speed (from 2-minute readings) exceeded 15 miles per hour (M.P.H.) in at least one hourly wind reading for 25 of the 96 total surveys. Average wind speeds exceeded 20 M.P.H. during only 5 surveys. Survey periods were also occasionally interrupted by periods of low visibility due to blowing dust. Biologists stopped surveying when large raptors could not be detected within 0.5 miles (800-meters) of the O.P., but were generally able to resume surveying a short time later. In total, 762 hours of survey time was conducted at the 6 stations.

Over the entire 4-week period, a total of total of 14 focal species was observed at all distances during BUC surveys. The most commonly observed species by a substantial margin were the Turkey Vulture (*Cathartes aura*) and Common Raven (*Corvus corax*). No Golden Eagles or Bald Eagles (*Haliaeetus leucocephalus*) were observed at any distance from the Study Area during any BUC surveys or at any time outside of official surveys by any biologist during the entire 4-week survey period. A complete list of focal species observed during BUC surveys, including the total number of individuals observed at all distances, the number of individuals observed within the 800-meter survey area, and rates of use within the survey area at different heights are displayed in Table 3. There was considerable variation among BUC O.P.s in terms of overall avian detection rates. BUC O.P.s #1 and #2, on the west side of the site, experienced by far the greatest number of focal species detections within the survey area. Data describing variation in focal species use among BUC O.P.s is displayed in Table 4 which details for each O.P. the number of individuals detected at all distances and within 800 meters of the O.P., in addition to rates of use within the survey area at different heights and the number of species detected over the 4-week period.

Non-focal species observations during BUC surveys included detections of 44 species, the most abundant of which were the Horned Lark (*Eremophila alpestris*) and various species of swallow (subfamily Hirundininae). A complete list of non-focal species observed during BUC surveys appears in Table 5, with information regarding their frequency and use with regard to flight heights. Variation among stations in non-focal species use is shown in Table 6, with information regarding frequency of observation, use with regard to flight height, and the total number of non-focal species detected at each station during the 4-week period.

Shorebirds and waterfowl were occasionally observed during BUC surveys, and these observations were generally restricted to O.P.s # 1 and #2, on the west side of the site near the palm plantation and water sources in the form of agricultural ponds. The one exception was an observation of a Long-billed Curlew detected flying between 0 and 50 meters high near BUC O.P. #5.



Vegetation Communities (AECOM)
- *Active Desert Dunes*
- *Agriculture*
- *Desert Dry Wash Woodland*
- *Desert Sink Scrub*
- *Developed*

Vegetation Communities (AECOM - continued)
- *Dry Lake Bed*
- *Sonoran Creosote Bush Scrub*
- *Stabilized and Partially Stabilized Desert Dunes*
- *Unvegetated Ephemeral Dry Wash*

UTM NAD 83 Zone 11 Coordinates
Author: Marcus C. England
Map Date: 20 July 2013
Base Map: US Department of Agriculture

0 2000 4000 6000 ft
1:40000

Exhibit 4: Avian Density at Small Bird Count Stations

Palen Solar Electric Generating System | Riverside County, California

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Table 3. BUC Survey Focal Species Abundance and Use

The following table lists all raptors and other birds larger than an American Crow (focal species) detected by BBI biologists during Spring BUC Surveys. Measures of abundance and use provided for each species include the following: (1) total number of individuals detected at all distances (# All Distances), (2) total number of individuals detected within the 800-meter radius survey area (# in 800 M), (3) average number of individuals detected within the survey area per hour (# in 800 M/hr), (4) average number of minutes spent flying or perched within the survey area per hour (minutes in 800 M/hr), (5) average number of minutes spent flying between 0-200 meters above ground level (agl) and within the survey area per hour (minutes 0-200 M/hr), (6) average number of minutes spent flying above 200 meters agl and within the survey area per hour (Minutes > 200 M/hr). The sum of values for variables related to flight height will not always be equal to 'Minutes in 800 M/hr' because that variable includes time spent perching by the species.

Common Name	Scientific Name	# All Distances	# In 800 M	# in 800 M/hr	Minutes in 800 M/hr	Minutes 0-200 M/hr	Minutes > 200m/hr
Great Egret	*Ardea alba*	1	0	0.00	0.00	0.00	0.00
White-faced Ibis	*Plegadis chihi*	26	0	0.00	0.00	0.00	0.00
Turkey Vulture	*Cathartes aura*	1701	723	0.95	5.20	5.06	0.08
Northern Harrier	*Circus cyaneus*	20	14	0.02	0.07	0.07	0.00
Sharp-shinned Hawk	*Accipiter striatus*	4	3	0.00	0.01	0.01	0.00
Cooper's Hawk	*Accipiter cooperii*	10	4	0.01	0.02	0.01	0.00
Unidentified Accipiter Hawk		2	2	0.00	0.00	0.00	0.00
Red-shouldered Hawk	*Buteo lineatus*	2	2	0.00	0.01	0.01	0.00
Swainson's Hawk	*Buteo swainsoni*	107	64	0.08	0.27	0.26	0.01
Red-tailed Hawk	*Buteo jamaicensis*	125	75	0.10	0.53	0.25	0.05
Ferruginous Hawk	*Buteo regalis*	1	1	0.00	0.01	0.01	0.00
Unidentified Hawk		19	5	0.01	0.02	0.01	0.00
American Kestrel	*Falco sparverius*	8	6	0.01	0.03	0.02	0.00
Prairie Falcon	*Falco mexicanus*	39	33	0.04	0.26	0.11	0.01
Unidentified Falcon		2	1	0.00	0.00	0.00	0.00
Burrowing Owl	*Athene cunicularia*	13	10	0.01	0.21	0.01	0.00
Common Raven	*Corvus corax*	646	437	0.57	2.53	1.44	0.09
Unidentified Bird		8	0	0.00	0.00	0.00	0.00

Table 4. Variation among BUC O.P.s in Focal Species Abundance, Use and Diversity

The following table lists the 6 BUC O.P.s surveyed by BBI biologists during Spring BUC Surveys. Measures of abundance, use, and diversity provided for each O.P. include the following (for all focal species combined): (1) total number of individuals detected at all distances (# All Distances), (2) total number of individuals detected within the 800-meter survey area (# in 800 M), (3) total hours of surveying conducted during spring season (Survey Hours), (4) average number of individuals detected within the 800-meter survey area per hour (# in 800 M/hr), (5) average number of minutes (summed across species) spent flying or perched within the survey area per hour (minutes in 800 M/hr), (6) average number of minutes (summed across species) spent flying between 0-200 meters above ground level (agl) and within the survey area per hour (minutes 0-200 M/hr), (7) average number of minutes (summed across species) spent flying above 200 meters agl and within the survey area per hour (Minutes > 200 M/hr), and (8) the total number of focal species observed (all distances) at the O.P. across all surveys (# Species). The sum of values for variables related to flight height will not always be equal to 'Minutes in 800 M/hr' because that variable includes time the birds spent perching. Though usage rates are presented on a per hour basis, variables related to minutes could theoretically exceed 60 because they are representative of the total minutes for all individuals of all species combined.

BUC O.P. #	# All Distances	# In 800 M	Survey Hours	# in 800 M/hr	Minutes in 800 M/hr	Minutes 0-200 M/hr	Minutes > 200m/hr	# Species
1	684	327	125.6	2.60	15.99	15.26	0.36	10
2	1142	548	128.0	4.28	25.52	17.55	0.34	11
3	359	158	128.0	1.23	4.01	3.91	0.08	7
4	259	145	125.6	1.15	3.21	2.90	0.29	8
5	145	105	128.0	0.82	2.49	2.19	0.10	8
6	114	89	126.7	0.70	3.55	1.68	0.25	8

Table 5. BUC Survey Non-Focal Species Abundance and Use

The following table lists all non-raptor avian species smaller than an American Crow (non-focal species) detected by BBI biologists during Spring BUC Surveys. Measures of abundance and use provided for each species include the following: (1) total number of individuals detected within the 800-meter radius survey area (# in 800 M), (2) average number of individuals detected within the survey area per hour (# in 800 M/hr), (3) average number of minutes spent flying between 0-50 meters above ground level (agl) and within the survey area per hour (minutes 0-50 M/hr), and (4) average number of minutes spent flying above 50 meters agl and within the survey area per hour (Minutes over 50 M/hr). The rates of use for non-focal BUC species are not directly comparable with those for the same species during SBC surveys because the survey area was much larger for BUC non-focal observations, and because these data are reported in min./hr. rather than min./10-min. survey period.

Common Name	Scientific Name	# In 800 M	# In 800 M/hr	Minutes 0-50 M/hr	Minutes over 50 M/hr
Gambel's Quail	*Callipepla gambelii*	12	0.02	0.01	0.00
Greater Yellowlegs	*Tringa melanoleuca*	2	0.00	0.00	0.00
Long-billed Curlew	*Numenius americanus*	1	0.00	0.01	0.00
Unidentified Dowitcher		1	0.00	0.00	0.00
White-winged Dove	*Zenaida asiatica*	19	0.02	0.03	0.00
Mourning Dove	*Zenaida macroura*	104	0.14	0.14	0.00
Lesser Nighthawk	*Chordeiles acutipennis*	5	0.01	0.01	0.00
Vaux's Swift	*Chaetura vauxi*	7	0.01	0.06	0.00
White-throated Swift	*Aeronautes saxatalis*	3	0.00	0.01	0.00
Anna's Hummingbird	*Calypte anna*	1	0.00	0.00	0.00
Unidentified Hummingbird		22	0.03	0.03	0.00
Ladder-backed Woodpecker	*Picoides scalaris*	2	0.00	0.00	0.00
Unidentified Empidonax Flycatcher		5	0.01	0.01	0.00
Say's Phoebe	*Sayornis saya*	1	0.00	0.00	0.00
Ash-throated Flycatcher	*Myiarchus cinerascens*	6	0.01	0.01	0.00

Common Name	Scientific Name	# In 800 M	# In 800 M/hr	Minutes 0-50 M/hr	Minutes over 50 M/hr
Western Kingbird	*Tyrannus verticalis*	8	0.01	0.01	0.00
Loggerhead Shrike	*Lanius ludovicianus*	38	0.05	0.09	0.00
Warbling Vireo	*Vireo gilvus*	1	0.00	0.00	0.00
Horned Lark	*Eremophila alpestris*	424	0.56	1.09	0.01
Tree Swallow	*Tachycineta bicolor*	269	0.35	7.55	0.00
Violet-green Swallow	*Tachycineta thalassina*	12	0.02	0.02	0.00
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*	11	0.01	0.02	0.00
Cliff Swallow	*Petrochelidon pyrrhonota*	127	0.17	0.25	0.00
Barn Swallow	*Hirundo rustica*	106	0.14	0.84	0.00
Unidentified Swallow		80	0.10	0.65	0.00
Verdin	*Auriparus flaviceps*	59	0.08	0.09	0.00
Ruby-crowned Kinglet	*Regulus calendula*	3	0.00	0.00	0.00
Northern Mockingbird	*Mimus polyglottos*	1	0.00	0.00	0.00
Le Conte's Thrasher	*Toxostoma lecontei*	11	0.01	0.01	0.00
European Starling	*Sturnus vulgaris*	34	0.04	0.08	0.00
American Pipit	*Anthus rubescens*	1	0.00	0.00	0.00
Orange-crowned Warbler	*Oreothlypis celata*	3	0.00	0.01	0.00
Yellow Warbler	*Setophaga petechia*	1	0.00	0.00	0.00
Yellow-rumped Warbler	*Setophaga coronata*	52	0.07	0.16	0.00
Black-throated Gray Warbler	*Setophaga nigrescens*	1	0.00	0.00	0.00
Wilson's Warbler	*Cardellina pusilla*	4	0.01	0.01	0.00
Yellow-breasted Chat	*Icteria virens*	3	0.00	0.01	0.00
Unidentified Warbler		3	0.00	0.00	0.00
Brewer's Sparrow	*Spizella breweri*	31	0.04	0.14	0.00
Lark Sparrow	*Chondestes grammacus*	2	0.00	0.00	0.00
Savannah Sparrow	*Passerculus sandwichensis*	6	0.01	0.01	0.00
Red-winged Blackbird	*Agelaius phoeniceus*	2	0.00	0.00	0.00
Great-tailed Grackle	*Quiscalus mexicanus*	77	0.10	0.18	0.00
Brown-headed Cowbird	*Molothrus ater*	4	0.01	0.01	0.00
Bullock's Oriole	*Icterus bullockii*	2	0.00	0.00	0.00
Unidentified Blackbird		35	0.05	0.05	0.00
Lesser Goldfinch	*Spinus psaltria*	2	0.00	0.00	0.00
Unidentified Finch		1	0.00	0.00	0.00
Blue-gray Gnatcatcher	*Polioptila caerulea*	3	0.00	0.00	0.00
House Finch	*Haemorhous mexicanus*	45	0.06	0.07	0.00
Unidentified Bird		14	0.02	0.02	0.00

Table 6. Variation among BUC O.P.s in Non-Focal Species Abundance, Use and Diversity

The following table lists the 6 BUC O.P.s surveyed by BBI biologists during Spring BUC Surveys. Measures of abundance, use, and diversity provided for each O.P. include the following (for all non-focal species combined): (1) total number of individuals detected within the 800-meter survey area (# in 800 M), (2) total hours of surveying conducted during spring season (Survey Hours), (3) average number of individuals detected within the 800-meter survey area per hour (# in 800 M/hr), (4) average number of minutes (summed across species) spent flying between 0-50 meters above ground level (agl) and within the survey area per hour (minutes 0-50 M/hr), (5) average number of minutes (summed across species) spent flying above 50 meters agl and within the survey area per hour (Minutes > 50 M/hr), and (6) the total number of non-focal species observed (all distances) at the O.P. across all surveys (# Species). Though usage rates are presented on a per hour basis, variables related to minutes could theoretically exceed 60 because they are representative of the total minutes for all individuals of all species combined.

BUC O.P. #	# In 800 M	Survey Hours	# in 800 M/hr	Minutes 0-50 M/hr	Minutes >50 M/hr	# Species
1	421	125.6	3.35	4.82	0.04	32
2	721	128.0	5.63	56.67	0.07	24
3	123	128.0	0.96	1.16	0.00	7
4	78	125.6	0.62	0.77	0.00	15
5	55	128.0	0.43	0.60	0.00	11
6	108	126.7	0.85	1.23	0.01	17

4.3 Mist Net Surveys

Mist net (MN) surveys were conducted for 2 days per week (total of 8 surveys) at 8 MN stations. MN surveys ranged in duration from 3.8 hours (ending early due to wind) to 6.4 hours per day, and averaged 5.3 hours in duration for over the entire Spring season. A total of 502.7 mist net survey hours (survey hours X number of nets) was conducted during this period. The numbers of individuals and number of species captured, as well as capture rates by net hour (total survey hours multiplied by the number of nets) can be found in Table 7, where totals are presented by date and habitat type. All captures occurred at MN stations in Desert Dry Wash Woodland and no birds were captured during MN surveys in Sonoran Creosote Scrub habitat. A complete list of all individuals captured is presented in Table 8, with information regarding the date and location of capture, as well as habitat type. One species captured during MN surveys, the Hermit Warbler (*Setophaga occidentalis*, 1 capture) was the only species recorded during any other survey type, nor incidentally, on site during the Spring season.

Table 7. Mist Net Survey Effort and Capture Rates

The following table lists the eight dates on which Spring Mist Net surveys were conducted by BBI biologists. For each date, the following are provided: (1) the Mist Net Station ID (MN Station), (2) the three SBC stations that comprise the MN Station (SBC Stations), (3) the dominant vegetation cover type present (Habitat Type), (4) the number of standard 2.6x12-meter mist nets used (# Nets), (5) the combined number of net hours, calculated as the number of nets x survey duration in hours (Net Hours), (6) the number of individuals captured (# Captured), (7) the number of avian species captured (# Species), and (8) the standardized measure of the number of captures per Net Hour (# Captures/Net Hour).

Date	MN Station	SBC Stations	Habitat Type	# Nets	Net Hours	# Captures	# Species	# Captures/Net Hour
11-Apr-2013	1	55, 56, 57	Dry Wash Woodland	12	71.57	3	3	0.042
12-Apr-2013	2	22, 23, 24	Creosote Scrub	12	48.49	0	0	0.000
19-Apr-2013	3	59, 60, 61	Dry Wash Woodland	12	65.08	6	4	0.092
20-Apr-2013	4	109, 110, 111	Creosote Scrub	12	57.58	0	0	0.000

Date	MN Station	SBC Stations	Habitat Type	# Nets	Net Hours	# Captures	# Species	# Captures/Net Hour
25-Apr-2013	5	95, 96, 97	Dry Wash Woodland	12	64.92	1	1	0.015
26-Apr-2013	6	114, 115, 116	Creosote Scrub	12	68.15	0	0	0.000
3-May-2013	7	86, 87, 88	Creosote Scrub	12	62.78	0	0	0.000
4-May-2013	8	98, 99, 100	Dry Wash Woodland	12	68.43	11	6	0.161

Table 8. Mist Net Capture Details

The following table lists all birds captured during Mist Net surveys, in order by species first and capture date second. For each capture, the following information is provided in addition to the common and scientific names: (1) Date of capture (Date), (2) Mist Net Station where capture occurred (MN Station), and (3) Dominant vegetation type at Mist Net Station where capture occurred (Habitat).

Common Name	Scientific Name	Date	MN Station	Habitat
Ash-throated Flycatcher	*Myiarchus cinerascens*	11-Apr-2013	1	Dry Wash Woodland
Loggerhead Shrike	*Lanius ludovicianus*	25-Apr-2013	5	Dry Wash Woodland
Warbling Vireo	*Vireo gilvus*	4-May-2013	8	Dry Wash Woodland
Verdin	*Auriparus flaviceps*	11-Apr-2013	1	Dry Wash Woodland
Verdin	*Auriparus flaviceps*	19-Apr-2013	3	Dry Wash Woodland
Verdin	*Auriparus flaviceps*	4-May-2013	8	Dry Wash Woodland
Verdin	*Auriparus flaviceps*	4-May-2013	8	Dry Wash Woodland
Verdin	*Auriparus flaviceps*	4-May-2013	8	Dry Wash Woodland
Verdin	*Auriparus flaviceps*	4-May-2013	8	Dry Wash Woodland
Verdin	*Auriparus flaviceps*	4-May-2013	8	Dry Wash Woodland
Ruby-crowned Kinglet	*Regulus calendula*	19-Apr-2013	3	Dry Wash Woodland
Nashville Warbler	*Oreothlypis ruficapilla*	19-Apr-2013	3	Dry Wash Woodland
Yellow Warbler	*Setophaga petechia*	4-May-2013	8	Dry Wash Woodland
Hermit Warbler	*Setophaga occidentalis*	4-May-2013	8	Dry Wash Woodland
Wilson's Warbler	*Cardellina pusilla*	4-May-2013	8	Dry Wash Woodland
White-crowned Sparrow	*Zonotrichia leucophrys*	11-Apr-2013	1	Dry Wash Woodland
Black-tailed Gnatcatcher	*Polioptila melanura*	19-Apr-2013	3	Dry Wash Woodland
Black-tailed Gnatcatcher	*Polioptila melanura*	19-Apr-2013	3	Dry Wash Woodland
Black-tailed Gnatcatcher	*Polioptila melanura*	19-Apr-2013	3	Dry Wash Woodland
Black-tailed Gnatcatcher	*Polioptila melanura*	4-May-2013	8	Dry Wash Woodland
Black-tailed Gnatcatcher	*Polioptila melanura*	4-May-2013	8	Dry Wash Woodland

4.4 Special Status Species Observations

4.4.1 Overview of Observations

All detections of special status bird species, including all species listed as Federally threatened or endangered, California threatened or endangered, or named by the California Department of Fish and Wildlife as Species of Special Concern (SSC), were recorded with spatial information whether they occurred during surveys or outside of official survey periods. In total, 338 observations of 10 special status species occurred in, or within 1-kilometer of the Project boundary. Each observation, whether it occurred during official survey periods or incidentally while on site between surveys is detailed in Table 9, with spatial and other pertinent information.

The most numerous special status species observed on site was the Loggerhead Shrike (*Lanius ludovicianus*, 170 detections), followed by the Swainson's Hawk (*Buteo swainsoni,* 143 detections). Burrowing Owls (*Athene cunicularia*) were observed 18 times, and 15 of these observations were of birds in or immediately adjacent to the BUC O.P. #2 survey area near private agricultural lands, where a nesting burrow was documented. The other three observations were scattered across the site, including observations near SBC stations #54, 72 and 101. Unusual special status species observations included one observation of 3 Yellow-breasted Chats at BUC O.P. #1 on April 12, which is an early arrival date for this migratory species, which usually begins to arrive in numbers in Southern California later in April. However, according to data from the E-bird website (www.ebird.org), this date is not unreasonably early, given that this species has been observed further north (in Ventura County, California) as early as March 16 in 2011, and has been observed at the southern end of the Salton Sea as early as March 24 in 1999. A single Vesper Sparrow (*Pooecetes gramineus*) was also observed on May 1, 2013 near SBC station #22, as well as one female Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*) on April 22, 2013 near SBC station #28. The majority of Le Conte's Thrasher (*Toxostoma lecontei*) observations occurred in the northeastern portion of the Project footprint and to the north, slightly beyond the project boundary. A total of 17 Vaux Swift (*Chaetura vauxi)* were detected on 8 separate observations, and though the sample size is small, they were most commonly seen near BUC O.P.s #1 and 2 (on the west side of the site), and near BUC O.P.s #5 and 6 and adjacent SBC stations (on the east side of the site).

Table 9. Avian Special Status Species Observations

The following table lists all special status species observations made by BBI biologists during and outside of official survey periods on or within 1 kilometer of the Project footprint. For each observation, the following information is provided: (1) Date, (2) time of observation (Time), (3) the number of individuals observed (# Observed), (4) the survey type during which the observation was made, including whether the observation was 'incidental' and occurred outside of a regular survey (Survey Type), (5) the survey type-specific station (if applicable) at which the observation occurred (Station), (6) the distance from the station to the location of the species observed (Distance), (7) the direction from the station to the location of the species observed (Direction), (8) for incidental observations, which may not have occurred at a survey station, the UTM coordinates (NAD83 projection) of the species observed (Easting and Northing).

Common Name	Scientific Name	Date	Time	# Observed	Survey Type	Station	Distance	Direction	Easting	Northing
Burrowing Owl	*Athene cunicularia*	April 11, 2013	6:30	1	BUC Focal	2	60	n.a.		
Burrowing Owl	*Athene cunicularia*	April 17, 2013	9:20	1	BUC Focal	2	66	W		
Burrowing Owl	*Athene cunicularia*	April 27, 2013	9:52	1	BUC Focal	2	87	W		

Common Name	Scientific Name	Date	Time	# Observed	Survey Type	Station	Distance	Direction	Easting	Northing
Burrowing Owl	*Athene cunicularia*	May 1, 2013	10:14	1	BUC Focal	2	60	W		
Burrowing Owl	*Athene cunicularia*	April 15, 2013	10:15	1	BUC Focal	2	200	NW		
Burrowing Owl	*Athene cunicularia*	April 16, 2013	10:45	1	BUC Focal	2	290	W		
Burrowing Owl	*Athene cunicularia*	April 16, 2013	11:15	1	BUC Focal	2	255	W		
Burrowing Owl	*Athene cunicularia*	April 20, 2013	16:36	1	BUC Focal	2	90	W		
Burrowing Owl	*Athene cunicularia*	April 24, 2013	18:21	1	BUC Focal	2	22	N		
Burrowing Owl	*Athene cunicularia*	April 24, 2013	19:01	1	BUC Focal	2	700	NW		
Burrowing Owl	*Athene cunicularia*	April 13, 2013	19:25	3	BUC Focal	2	200	SW		
Burrowing Owl	*Athene cunicularia*	April 26, 2013	n.a.	1	Incidental Obs.	n.a.	n.a.	n.a.	667450	3728022
Burrowing Owl	*Athene cunicularia*	April 27, 2013	n.a.	1	Incidental Obs.	n.a.	n.a.	n.a.	663900	3731540
Burrowing Owl	*Athene cunicularia*	April 30, 2013	n.a.	1	Incidental Obs.	n.a.	n.a.	n.a.	665599	3728091
Burrowing Owl	*Athene cunicularia*	April 29, 2013	5:49	1	SBC	14	560	NW		
Burrowing Owl	*Athene cunicularia*	April 29, 2013	6:51	1	SBC	17	750	NW		
Burrowing Owl	*Athene cunicularia*	April 29, 2013	7:12	1	SBC	18	800	N		
Burrowing Owl	*Athene cunicularia*	April 30, 2013	6:50	1	SBC	54	932	SSE		
Le Conte's Thrasher	*Toxostoma lecontei*	April 15, 2013	8:45	1	BUC Nonfocal	1	n.a.	n.a.		
Le Conte's Thrasher	*Toxostoma lecontei*	April 25, 2013	8:36	1	BUC Nonfocal	2	n.a.	n.a.		
Le Conte's Thrasher	*Toxostoma lecontei*	April 26, 2013	5:50	1	BUC Nonfocal	4	n.a.	n.a.		
Le Conte's Thrasher	*Toxostoma lecontei*	April 11, 2013	6:01	2	BUC Nonfocal	4	n.a.	n.a.		

Common Name	Scientific Name	Date	Time	# Observed	Survey Type	Station	Distance	Direction	Easting	Northing
Le Conte's Thrasher	*Toxostoma lecontei*	April 26, 2013	6:50	1	BUC Nonfocal	4	n.a.	n.a.		
Le Conte's Thrasher	*Toxostoma lecontei*	April 19, 2013	10:37	1	BUC Nonfocal	4	n.a.	n.a.		
Le Conte's Thrasher	*Toxostoma lecontei*	April 25, 2013	12:01	1	BUC Nonfocal	4	n.a.	n.a.		
Le Conte's Thrasher	*Toxostoma lecontei*	April 24, 2013	18:31	2	BUC Nonfocal	4	n.a.	n.a.		
Le Conte's Thrasher	*Toxostoma lecontei*	April 26, 2013	6:40	1	BUC Nonfocal	6	n.a.	n.a.		
Le Conte's Thrasher	*Toxostoma lecontei*	April 10, 2013	n.a.	n.a.	Incidental Obs.	n.a.	n.a.	n.a.	669736	3729512
Le Conte's Thrasher	*Toxostoma lecontei*	April 10, 2013	n.a.	n.a.	Incidental Obs.	n.a.	n.a.	n.a.	669001	3730099
Le Conte's Thrasher	*Toxostoma lecontei*	April 11, 2013	n.a.	n.a.	Incidental Obs.	n.a.	n.a.	n.a.	666600	3730817
Le Conte's Thrasher	*Toxostoma lecontei*	April 23, 2013	n.a.	n.a.	Incidental Obs.	n.a.	n.a.	n.a.	666501	3730723
Le Conte's Thrasher	*Toxostoma lecontei*	April 19, 2013	n.a.	1	Incidental Obs.	n.a.	n.a.	n.a.	666687	3730987
Le Conte's Thrasher	*Toxostoma lecontei*	May 1, 2013	n.a.	1	Incidental Obs.	n.a.	n.a.	n.a.	667932	3730284
Le Conte's Thrasher	*Toxostoma lecontei*	April 27, 2013	10:30	1	SBC	47	98	ESE		
Le Conte's Thrasher	*Toxostoma lecontei*	April 11, 2013	7:25	1	SBC	49	190	W		
Le Conte's Thrasher	*Toxostoma lecontei*	April 16, 2013	7:00	1	SBC	50	76	NE		
Le Conte's Thrasher	*Toxostoma lecontei*	April 16, 2013	7:00	1	SBC	50	84	NE		
Le Conte's Thrasher	*Toxostoma lecontei*	April 30, 2013	7:14	1	SBC	51	183	NE		
Le Conte's Thrasher	*Toxostoma lecontei*	April 30, 2013	7:14	1	SBC	51	153	E		
Le Conte's Thrasher	*Toxostoma lecontei*	April 16, 2013	7:26	1	SBC	51	84	ESE		
Le Conte's Thrasher	*Toxostoma lecontei*	April 11, 2013	8:16	1	SBC	51	113	S		

Common Name	Scientific Name	Date	Time	# Observed	Survey Type	Station	Distance	Direction	Easting	Northing
Le Conte's Thrasher	*Toxostoma lecontei*	April 11, 2013	8:16	4	SBC	51	109	SE		
Le Conte's Thrasher	*Toxostoma lecontei*	April 11, 2013	8:43	1	SBC	52	208	SW		
Le Conte's Thrasher	*Toxostoma lecontei*	April 17, 2013	6:08	1	SBC	74	500	W		
Le Conte's Thrasher	*Toxostoma lecontei*	April 24, 2013	8:37	1	SBC	88	292	NE		
Le Conte's Thrasher	*Toxostoma lecontei*	May 1, 2013	6:52	1	SBC	91	228	NNE		
Le Conte's Thrasher	*Toxostoma lecontei*	April 30, 2013	6:24	1	SBC	104	144	NW		
Le Conte's Thrasher	*Toxostoma lecontei*	April 16, 2013	6:51	1	SBC	104	146	NW		
Le Conte's Thrasher	*Toxostoma lecontei*	April 10, 2013	11:32	1	SBC	104	144	W		
Le Conte's Thrasher	*Toxostoma lecontei*	April 30, 2013	7:41	1	SBC	108	221	SE		
Le Conte's Thrasher	*Toxostoma lecontei*	April 10, 2013	9:55	1	SBC	108	114	N		
Le Conte's Thrasher	*Toxostoma lecontei*	April 10, 2013	9:55	1	SBC	108	300	N		
Le Conte's Thrasher	*Toxostoma lecontei*	April 16, 2013	8:14	1	SBC	120	250	S		
Loggerhead Shrike	*Lanius ludovicianus*	April 22, 2013	6:45	1	BUC Nonfocal	1	n.a.	n.a.		
Loggerhead Shrike	*Lanius ludovicianus*	April 26, 2013	5:50	1	BUC Nonfocal	4	n.a.	n.a.		
Loggerhead Shrike	*Lanius ludovicianus*	April 26, 2013	6:50	1	BUC Nonfocal	4	n.a.	n.a.		
Loggerhead Shrike	*Lanius ludovicianus*	April 26, 2013	8:50	2	BUC Nonfocal	4	n.a.	n.a.		
Loggerhead Shrike	*Lanius ludovicianus*	April 29, 2013	9:36	1	BUC Nonfocal	4	n.a.	n.a.		
Loggerhead Shrike	*Lanius ludovicianus*	April 12, 2013	9:40	1	BUC Nonfocal	4	n.a.	n.a.		
Loggerhead Shrike	*Lanius ludovicianus*	April 20, 2013	9:47	1	BUC Nonfocal	4	n.a.	n.a.		

Common Name	Scientific Name	Date	Time	# Observed	Survey Type	Station	Distance	Direction	Easting	Northing
Loggerhead Shrike	*Lanius ludovicianus*	May 1, 2013	10:36	1	BUC Nonfocal	4	n.a.	n.a.		
Loggerhead Shrike	*Lanius ludovicianus*	April 12, 2013	10:40	1	BUC Nonfocal	4	n.a.	n.a.		
Loggerhead Shrike	*Lanius ludovicianus*	April 20, 2013	10:47	1	BUC Nonfocal	4	n.a.	n.a.		
Loggerhead Shrike	*Lanius ludovicianus*	April 18, 2013	11:27	1	BUC Nonfocal	4	n.a.	n.a.		
Loggerhead Shrike	*Lanius ludovicianus*	April 20, 2013	6:47	2	BUC Nonfocal	5	n.a.	n.a.		
Loggerhead Shrike	*Lanius ludovicianus*	April 25, 2013	8:37	1	BUC Nonfocal	5	n.a.	n.a.		
Loggerhead Shrike	*Lanius ludovicianus*	April 20, 2013	8:47	1	BUC Nonfocal	5	n.a.	n.a.		
Loggerhead Shrike	*Lanius ludovicianus*	April 20, 2013	9:47	2	BUC Nonfocal	5	n.a.	n.a.		
Loggerhead Shrike	*Lanius ludovicianus*	April 20, 2013	10:47	1	BUC Nonfocal	5	n.a.	n.a.		
Loggerhead Shrike	*Lanius ludovicianus*	April 13, 2013	11:30	1	BUC Nonfocal	5	n.a.	n.a.		
Loggerhead Shrike	*Lanius ludovicianus*	April 13, 2013	15:30	1	BUC Nonfocal	5	n.a.	n.a.		
Loggerhead Shrike	*Lanius ludovicianus*	April 18, 2013	18:30	1	BUC Nonfocal	5	n.a.	n.a.		
Loggerhead Shrike	*Lanius ludovicianus*	April 11, 2013	6:05	3	BUC Nonfocal	6	n.a.	n.a.		
Loggerhead Shrike	*Lanius ludovicianus*	April 22, 2013	6:54	2	BUC Nonfocal	6	n.a.	n.a.		
Loggerhead Shrike	*Lanius ludovicianus*	April 22, 2013	7:54	1	BUC Nonfocal	6	n.a.	n.a.		
Loggerhead Shrike	*Lanius ludovicianus*	April 15, 2013	8:45	2	BUC Nonfocal	6	n.a.	n.a.		
Loggerhead Shrike	*Lanius ludovicianus*	April 22, 2013	8:54	1	BUC Nonfocal	6	n.a.	n.a.		
Loggerhead Shrike	*Lanius ludovicianus*	April 15, 2013	9:45	1	BUC Nonfocal	6	n.a.	n.a.		
Loggerhead Shrike	*Lanius ludovicianus*	April 15, 2013	10:45	1	BUC Nonfocal	6	n.a.	n.a.		

Common Name	Scientific Name	Date	Time	# Observed	Survey Type	Station	Distance	Direction	Easting	Northing
Loggerhead Shrike	*Lanius ludovicianus*	April 15, 2013	11:45	1	BUC Nonfocal	6	n.a.	n.a.		
Loggerhead Shrike	*Lanius ludovicianus*	April 15, 2013	12:45	1	BUC Nonfocal	6	n.a.	n.a.		
Loggerhead Shrike	*Lanius ludovicianus*	April 30, 2013	15:40	1	BUC Nonfocal	6	n.a.	n.a.		
Loggerhead Shrike	*Lanius ludovicianus*	April 13, 2013	16:33	1	BUC Nonfocal	6	n.a.	n.a.		
Loggerhead Shrike	*Lanius ludovicianus*	April 13, 2013	18:33	1	BUC Nonfocal	6	n.a.	n.a.		
Loggerhead Shrike	*Lanius ludovicianus*	April 13, 2013	n.a.	n.a.	Incidental Obs.	n.a.	n.a.	n.a.	667019	3729347
Loggerhead Shrike	*Lanius ludovicianus*	April 16, 2013	n.a.	n.a.	Incidental Obs.	n.a.	n.a.	n.a.	665121	3728703
Loggerhead Shrike	*Lanius ludovicianus*	April 18, 2013	n.a.	n.a.	Incidental Obs.	n.a.	n.a.	n.a.	667479	3728229
Loggerhead Shrike	*Lanius ludovicianus*	April 23, 2013	n.a.	n.a.	Incidental Obs.	n.a.	n.a.	n.a.	665968	3730062
Loggerhead Shrike	*Lanius ludovicianus*	April 25, 2013	n.a.	n.a.	Incidental Obs.	n.a.	n.a.	n.a.	666687	3727349
Loggerhead Shrike	*Lanius ludovicianus*	April 30, 2013	n.a.	n.a.	Incidental Obs.	n.a.	n.a.	n.a.	665958	3730186
Loggerhead Shrike	*Lanius ludovicianus*	May 1, 2013	n.a.	n.a.	Incidental Obs.	n.a.	n.a.	n.a.	667520	3729829
Loggerhead Shrike	*Lanius ludovicianus*	April 10, 2013	n.a.	1	Incidental Obs.	n.a.	n.a.	n.a.	663246	3727523
Loggerhead Shrike	*Lanius ludovicianus*	April 11, 2013	n.a.	1	Incidental Obs.	n.a.	n.a.	n.a.	665290	3728502
Loggerhead Shrike	*Lanius ludovicianus*	April 12, 2013	n.a.	1	Incidental Obs.	n.a.	n.a.	n.a.	666682	3731993
Loggerhead Shrike	*Lanius ludovicianus*	April 13, 2013	n.a.	1	Incidental Obs.	n.a.	n.a.	n.a.	669011	3726921
Loggerhead Shrike	*Lanius ludovicianus*	April 16, 2013	n.a.	1	Incidental Obs.	n.a.	n.a.	n.a.	665541	3729570
Loggerhead Shrike	*Lanius ludovicianus*	April 19, 2013	n.a.	1	Incidental Obs.	n.a.	n.a.	n.a.	666018	3731129
Loggerhead Shrike	*Lanius ludovicianus*	April 19, 2013	n.a.	1	Incidental Obs.	n.a.	n.a.	n.a.	665553	3730836

Common Name	Scientific Name	Date	Time	# Observed	Survey Type	Station	Distance	Direction	Easting	Northing
Loggerhead Shrike	*Lanius ludovicianus*	April 20, 2013	n.a.	1	Incidental Obs.	n.a.	n.a.	n.a.	665851	3731028
Loggerhead Shrike	*Lanius ludovicianus*	April 23, 2013	n.a.	1	Incidental Obs.	n.a.	n.a.	n.a.	667232	3729552
Loggerhead Shrike	*Lanius ludovicianus*	April 23, 2013	n.a.	1	Incidental Obs.	n.a.	n.a.	n.a.	666815	3729853
Loggerhead Shrike	*Lanius ludovicianus*	April 23, 2013	n.a.	1	Incidental Obs.	n.a.	n.a.	n.a.	666203	3730475
Loggerhead Shrike	*Lanius ludovicianus*	April 26, 2013	n.a.	1	Incidental Obs.	n.a.	n.a.	n.a.	668902	3727533
Loggerhead Shrike	*Lanius ludovicianus*	April 29, 2013	n.a.	1	Incidental Obs.	n.a.	n.a.	n.a.	665958	3732072
Loggerhead Shrike	*Lanius ludovicianus*	April 30, 2013	n.a.	1	Incidental Obs.	n.a.	n.a.	n.a.	665512	3730466
Loggerhead Shrike	*Lanius ludovicianus*	April 25, 2013	n.a.	1	Mist Net	5	n.a.	n.a.		
Loggerhead Shrike	*Lanius ludovicianus*	April 26, 2013	9:09	1	SBC	17	35	SW		
Loggerhead Shrike	*Lanius ludovicianus*	April 29, 2013	10:21	1	SBC	33	380	W		
Loggerhead Shrike	*Lanius ludovicianus*	April 29, 2013	8:59	1	SBC	37	24	NE		
Loggerhead Shrike	*Lanius ludovicianus*	April 12, 2013	8:03	1	SBC	43	181	SW		
Loggerhead Shrike	*Lanius ludovicianus*	April 30, 2013	6:22	1	SBC	46	865	NNW		
Loggerhead Shrike	*Lanius ludovicianus*	April 16, 2013	6:24	1	SBC	46	91	SW		
Loggerhead Shrike	*Lanius ludovicianus*	April 11, 2013	6:38	1	SBC	47	198	E		
Loggerhead Shrike	*Lanius ludovicianus*	April 11, 2013	6:38	1	SBC	47	207	NE		
Loggerhead Shrike	*Lanius ludovicianus*	April 30, 2013	5:51	1	SBC	48	78	N		
Loggerhead Shrike	*Lanius ludovicianus*	April 30, 2013	5:51	1	SBC	48	79	N		

Common Name	Scientific Name	Date	Time	# Observed	Survey Type	Station	Distance	Direction	Easting	Northing
Loggerhead Shrike	*Lanius ludovicianus*	April 16, 2013	6:18	1	SBC	48	17	SSE		
Loggerhead Shrike	*Lanius ludovicianus*	April 16, 2013	6:18	3	SBC	48	17	SSE		
Loggerhead Shrike	*Lanius ludovicianus*	April 11, 2013	7:02	1	SBC	48	67	S		
Loggerhead Shrike	*Lanius ludovicianus*	April 11, 2013	7:02	1	SBC	48	72	S		
Loggerhead Shrike	*Lanius ludovicianus*	April 23, 2013	11:05	1	SBC	48	53	SE		
Loggerhead Shrike	*Lanius ludovicianus*	April 23, 2013	11:05	3	SBC	48	26	SE		
Loggerhead Shrike	*Lanius ludovicianus*	April 30, 2013	6:19	1	SBC	49	249	S		
Loggerhead Shrike	*Lanius ludovicianus*	April 30, 2013	6:19	1	SBC	49	47	NW		
Loggerhead Shrike	*Lanius ludovicianus*	April 16, 2013	6:41	1	SBC	49	362	S		
Loggerhead Shrike	*Lanius ludovicianus*	April 11, 2013	7:25	1	SBC	49	219	SW		
Loggerhead Shrike	*Lanius ludovicianus*	April 11, 2013	7:25	1	SBC	49	230	SW		
Loggerhead Shrike	*Lanius ludovicianus*	April 23, 2013	10:48	1	SBC	49	328	S		
Loggerhead Shrike	*Lanius ludovicianus*	April 23, 2013	10:27	1	SBC	50	152	SSW		
Loggerhead Shrike	*Lanius ludovicianus*	April 27, 2013	9:30	1	SBC	54	27	SW		
Loggerhead Shrike	*Lanius ludovicianus*	April 16, 2013	7:52	1	SBC	56	120	N		
Loggerhead Shrike	*Lanius ludovicianus*	April 16, 2013	7:52	1	SBC	56	130	N		
Loggerhead Shrike	*Lanius ludovicianus*	April 16, 2013	8:24	1	SBC	57	200	W		
Loggerhead Shrike	*Lanius ludovicianus*	April 23, 2013	6:18	1	SBC	63	888	E		

Common Name	Scientific Name	Date	Time	# Observed	Survey Type	Station	Distance	Direction	Easting	Northing
Loggerhead Shrike	*Lanius ludovicianus*	April 16, 2013	11:11	1	SBC	63	577	NNE		
Loggerhead Shrike	*Lanius ludovicianus*	April 16, 2013	11:11	1	SBC	63	642	W		
Loggerhead Shrike	*Lanius ludovicianus*	April 16, 2013	11:11	1	SBC	63	77	S		
Loggerhead Shrike	*Lanius ludovicianus*	April 23, 2013	6:38	1	SBC	64	316	E		
Loggerhead Shrike	*Lanius ludovicianus*	April 16, 2013	10:55	1	SBC	64	315	NE		
Loggerhead Shrike	*Lanius ludovicianus*	April 16, 2013	10:55	1	SBC	64	645	W		
Loggerhead Shrike	*Lanius ludovicianus*	April 23, 2013	7:03	1	SBC	65	178	SE		
Loggerhead Shrike	*Lanius ludovicianus*	April 30, 2013	10:09	1	SBC	65	188	NE		
Loggerhead Shrike	*Lanius ludovicianus*	April 16, 2013	10:34	1	SBC	65	152	NE		
Loggerhead Shrike	*Lanius ludovicianus*	April 11, 2013	10:53	1	SBC	65	177	SW		
Loggerhead Shrike	*Lanius ludovicianus*	April 30, 2013	9:31	1	SBC	66	204	SE		
Loggerhead Shrike	*Lanius ludovicianus*	April 16, 2013	10:07	1	SBC	66	208	SE		
Loggerhead Shrike	*Lanius ludovicianus*	April 24, 2013	10:01	1	SBC	70	232	SW		
Loggerhead Shrike	*Lanius ludovicianus*	May 1, 2013	6:53	1	SBC	71	70	N		
Loggerhead Shrike	*Lanius ludovicianus*	April 24, 2013	10:25	1	SBC	71	108	W		
Loggerhead Shrike	*Lanius ludovicianus*	May 1, 2013	6:32	1	SBC	72	161	NW		
Loggerhead Shrike	*Lanius ludovicianus*	April 13, 2013	7:50	1	SBC	78	250	W		
Loggerhead Shrike	*Lanius ludovicianus*	May 1, 2013	7:45	1	SBC	79	81	SW		
Loggerhead Shrike	*Lanius ludovicianus*	April 13, 2013	8:24	1	SBC	80	145	NE		

Common Name	Scientific Name	Date	Time	# Observed	Survey Type	Station	Distance	Direction	Easting	Northing
Loggerhead Shrike	*Lanius ludovicianus*	April 18, 2013	9:03	1	SBC	82	n.a.	n.a.		
Loggerhead Shrike	*Lanius ludovicianus*	April 18, 2013	9:03	1	SBC	82	32	SW		
Loggerhead Shrike	*Lanius ludovicianus*	April 18, 2013	9:03	1	SBC	82	95	SE		
Loggerhead Shrike	*Lanius ludovicianus*	April 24, 2013	8:29	1	SBC	84	145	N		
Loggerhead Shrike	*Lanius ludovicianus*	April 24, 2013	8:29	1	SBC	84	480	S		
Loggerhead Shrike	*Lanius ludovicianus*	April 18, 2013	8:34	1	SBC	84	19	E		
Loggerhead Shrike	*Lanius ludovicianus*	April 13, 2013	8:45	1	SBC	84	174	S		
Loggerhead Shrike	*Lanius ludovicianus*	April 13, 2013	8:45	1	SBC	84	220	W		
Loggerhead Shrike	*Lanius ludovicianus*	April 13, 2013	9:04	1	SBC	85	401	SE		
Loggerhead Shrike	*Lanius ludovicianus*	April 18, 2013	6:43	1	SBC	86	648	ESE		
Loggerhead Shrike	*Lanius ludovicianus*	April 18, 2013	6:43	1	SBC	86	651	N		
Loggerhead Shrike	*Lanius ludovicianus*	April 13, 2013	7:48	1	SBC	86	270	S		
Loggerhead Shrike	*Lanius ludovicianus*	April 18, 2013	6:24	2	SBC	87	407	NW		
Loggerhead Shrike	*Lanius ludovicianus*	April 24, 2013	8:13	1	SBC	87	362	NE		
Loggerhead Shrike	*Lanius ludovicianus*	May 1, 2013	7:54	1	SBC	88	256	N		
Loggerhead Shrike	*Lanius ludovicianus*	April 17, 2013	8:15	1	SBC	88	168	WNW		
Loggerhead Shrike	*Lanius ludovicianus*	April 17, 2013	8:15	1	SBC	88	288	W		
Loggerhead Shrike	*Lanius ludovicianus*	April 13, 2013	8:28	2	SBC	88	304	W		
Loggerhead Shrike	*Lanius ludovicianus*	April 24, 2013	8:37	1	SBC	88	273	NE		

Common Name	Scientific Name	Date	Time	# Observed	Survey Type	Station	Distance	Direction	Easting	Northing
Loggerhead Shrike	*Lanius ludovicianus*	May 1, 2013	7:35	1	SBC	89	380	NNE		
Loggerhead Shrike	*Lanius ludovicianus*	April 17, 2013	7:57	1	SBC	89	251	SW		
Loggerhead Shrike	*Lanius ludovicianus*	April 17, 2013	7:57	1	SBC	89	436	SW		
Loggerhead Shrike	*Lanius ludovicianus*	April 13, 2013	9:04	1	SBC	89	258	SW		
Loggerhead Shrike	*Lanius ludovicianus*	April 13, 2013	9:04	1	SBC	89	483	SW		
Loggerhead Shrike	*Lanius ludovicianus*	May 1, 2013	7:15	4	SBC	90	161	NW		
Loggerhead Shrike	*Lanius ludovicianus*	April 17, 2013	7:40	1	SBC	90	806	W		
Loggerhead Shrike	*Lanius ludovicianus*	May 1, 2013	6:52	4	SBC	91	286	W		
Loggerhead Shrike	*Lanius ludovicianus*	April 24, 2013	6:57	1	SBC	94	157	S		
Loggerhead Shrike	*Lanius ludovicianus*	April 13, 2013	7:03	1	SBC	95	109	N		
Loggerhead Shrike	*Lanius ludovicianus*	April 13, 2013	7:03	2	SBC	95	109	N		
Loggerhead Shrike	*Lanius ludovicianus*	April 24, 2013	7:15	1	SBC	95	106	S		
Loggerhead Shrike	*Lanius ludovicianus*	April 13, 2013	6:41	1	SBC	96	87	N		
Loggerhead Shrike	*Lanius ludovicianus*	April 13, 2013	6:41	1	SBC	96	99	NE		
Loggerhead Shrike	*Lanius ludovicianus*	April 24, 2013	7:36	1	SBC	96	217	ENE		
Loggerhead Shrike	*Lanius ludovicianus*	April 18, 2013	9:37	1	SBC	99	n.a.	n.a.		
Loggerhead Shrike	*Lanius ludovicianus*	April 24, 2013	5:56	1	SBC	100	132	W		
Loggerhead Shrike	*Lanius ludovicianus*	April 24, 2013	5:56	1	SBC	100	23	W		
Loggerhead Shrike	*Lanius ludovicianus*	May 1, 2013	10:26	1	SBC	100	47	NW		

Common Name	Scientific Name	Date	Time	# Observed	Survey Type	Station	Distance	Direction	Easting	Northing
Loggerhead Shrike	*Lanius ludovicianus*	April 24, 2013	6:29	1	SBC	101	211	WSW		
Loggerhead Shrike	*Lanius ludovicianus*	April 24, 2013	6:29	1	SBC	101	73	SW		
Loggerhead Shrike	*Lanius ludovicianus*	April 24, 2013	6:29	1	SBC	101	133	NW		
Loggerhead Shrike	*Lanius ludovicianus*	April 24, 2013	6:29	1	SBC	101	180	WNW		
Loggerhead Shrike	*Lanius ludovicianus*	April 12, 2013	10:39	1	SBC	101	n.a.	n.a.		
Loggerhead Shrike	*Lanius ludovicianus*	May 1, 2013	10:31	1	SBC	102	n.a.	n.a.		
Loggerhead Shrike	*Lanius ludovicianus*	April 12, 2013	10:59	1	SBC	102	194	W		
Loggerhead Shrike	*Lanius ludovicianus*	April 10, 2013	6:51	1	SBC	115	270	W		
Loggerhead Shrike	*Lanius ludovicianus*	April 16, 2013	10:51	3	SBC	115	21	NW		
Loggerhead Shrike	*Lanius ludovicianus*	April 10, 2013	7:12	1	SBC	116	196	W		
Northern Harrier	*Circus cyaneus*	April 9, 2013	13:59	1	BUC Focal	1	370	SE		
Northern Harrier	*Circus cyaneus*	May 2, 2013	10:20	1	BUC Focal	2	1,000	SW		
Northern Harrier	*Circus cyaneus*	April 15, 2013	11:32	1	BUC Focal	2	200	W		
Northern Harrier	*Circus cyaneus*	April 9, 2013	11:40	1	BUC Focal	2	255	W		
Northern Harrier	*Circus cyaneus*	April 10, 2013	11:51	1	BUC Focal	2	1,700	N		
Northern Harrier	*Circus cyaneus*	April 24, 2013	12:21	1	BUC Focal	2	480	SW		
Northern Harrier	*Circus cyaneus*	April 10, 2013	14:31	1	BUC Focal	2	590	NE		
Northern Harrier	*Circus cyaneus*	April 10, 2013	16:27	1	BUC Focal	2	380	N		
Northern Harrier	*Circus cyaneus*	April 13, 2013	17:19	1	BUC Focal	2	50	N		

Common Name	Scientific Name	Date	Time	# Observed	Survey Type	Station	Distance	Direction	Easting	Northing
Northern Harrier	*Circus cyaneus*	April 20, 2013	18:27	1	BUC Focal	2	312	N		
Northern Harrier	*Circus cyaneus*	April 16, 2013	8:15	1	BUC Focal	3	120	N		
Northern Harrier	*Circus cyaneus*	April 18, 2013	18:29	1	BUC Focal	3	210	NE		
Northern Harrier	*Circus cyaneus*	April 10, 2013	9:50	1	BUC Focal	4	1,100	NW		
Northern Harrier	*Circus cyaneus*	April 10, 2013	13:46	1	BUC Focal	4	950	E		
Northern Harrier	*Circus cyaneus*	April 10, 2013	15:13	1	BUC Focal	4	1,000	NE		
Northern Harrier	*Circus cyaneus*	April 18, 2013	16:34	1	BUC Focal	4	1,150	SE		
Northern Harrier	*Circus cyaneus*	April 30, 2013	9:39	1	BUC Focal	5	270	SE		
Northern Harrier	*Circus cyaneus*	April 18, 2013	18:30	1	BUC Focal	5	900	W		
Northern Harrier	*Circus cyaneus*	April 11, 2013	11:41	1	BUC Focal	6	1,200	NE		
Northern Harrier	*Circus cyaneus*	April 17, 2013	16:58	1	BUC Focal	6	50	E		
Northern Harrier	*Circus cyaneus*	April 22, 2013	n.a.	1	Incidental Obs.	n.a.	n.a.	n.a.	664040	3731555
Northern Harrier	*Circus cyaneus*	April 22, 2013	9:18	1	SBC	9	310	ENE		
Northern Harrier	*Circus cyaneus*	April 9, 2013	8:42	1	SBC	37	n.a.	n.a.		
Swainson's Hawk	*Buteo swainsoni*	April 16, 2013	8:28	1	BUC Focal	1	610	S		
Swainson's Hawk	*Buteo swainsoni*	April 16, 2013	8:29	1	BUC Focal	1	690	S		
Swainson's Hawk	*Buteo swainsoni*	April 16, 2013	8:50	1	BUC Focal	1	870	NE		
Swainson's Hawk	*Buteo swainsoni*	April 16, 2013	8:54	1	BUC Focal	1	40	SE		

Common Name	Scientific Name	Date	Time	# Observed	Survey Type	Station	Distance	Direction	Easting	Northing
Swainson's Hawk	*Buteo swainsoni*	April 30, 2013	9:25	1	BUC Focal	1	700	NW		
Swainson's Hawk	*Buteo swainsoni*	April 16, 2013	10:03	1	BUC Focal	1	520	W		
Swainson's Hawk	*Buteo swainsoni*	April 18, 2013	14:20	1	BUC Focal	1	300	S		
Swainson's Hawk	*Buteo swainsoni*	April 9, 2013	14:38	1	BUC Focal	1	430	NW		
Swainson's Hawk	*Buteo swainsoni*	April 19, 2013	15:16	1	BUC Focal	1	300	N		
Swainson's Hawk	*Buteo swainsoni*	April 27, 2013	9:37	1	BUC Focal	2	1,000	N		
Swainson's Hawk	*Buteo swainsoni*	April 11, 2013	10:42	1	BUC Focal	2	110	S		
Swainson's Hawk	*Buteo swainsoni*	April 17, 2013	10:51	1	BUC Focal	2	410	E		
Swainson's Hawk	*Buteo swainsoni*	April 17, 2013	10:53	1	BUC Focal	2	390	S		
Swainson's Hawk	*Buteo swainsoni*	April 9, 2013	12:07	1	BUC Focal	2	143	N		
Swainson's Hawk	*Buteo swainsoni*	April 10, 2013	12:17	1	BUC Focal	2	550	N		
Swainson's Hawk	*Buteo swainsoni*	April 10, 2013	13:47	1	BUC Focal	2	1,500	NW		
Swainson's Hawk	*Buteo swainsoni*	April 19, 2013	9:50	1	BUC Focal	3	150	S		
Swainson's Hawk	*Buteo swainsoni*	April 17, 2013	10:35	1	BUC Focal	3	270	S		
Swainson's Hawk	*Buteo swainsoni*	April 11, 2013	10:35	1	BUC Focal	3	305	N		
Swainson's Hawk	*Buteo swainsoni*	April 17, 2013	10:55	1	BUC Focal	3	260	NE		
Swainson's Hawk	*Buteo swainsoni*	April 17, 2013	10:57	1	BUC Focal	3	85	W		
Swainson's Hawk	*Buteo swainsoni*	May 3, 2013	11:31	1	BUC Focal	3	400	SW		
Swainson's Hawk	*Buteo swainsoni*	April 11, 2013	11:48	1	BUC Focal	3	1,250	E		

Common Name	Scientific Name	Date	Time	# Observed	Survey Type	Station	Distance	Direction	Easting	Northing
Swainson's Hawk	*Buteo swainsoni*	April 11, 2013	12:11	2	BUC Focal	3	1,400	E		
Swainson's Hawk	*Buteo swainsoni*	April 25, 2013	12:36	1	BUC Focal	3	310	NE		
Swainson's Hawk	*Buteo swainsoni*	April 18, 2013	12:39	1	BUC Focal	3	1,850	SW		
Swainson's Hawk	*Buteo swainsoni*	April 10, 2013	12:53	1	BUC Focal	3	675	E		
Swainson's Hawk	*Buteo swainsoni*	April 11, 2013	13:31	1	BUC Focal	3	355	N		
Swainson's Hawk	*Buteo swainsoni*	April 10, 2013	13:56	1	BUC Focal	3	245	E		
Swainson's Hawk	*Buteo swainsoni*	April 19, 2013	16:27	1	BUC Focal	3	500	NE		
Swainson's Hawk	*Buteo swainsoni*	April 11, 2013	10:20	1	BUC Focal	4	1,100	SE		
Swainson's Hawk	*Buteo swainsoni*	April 11, 2013	10:24	1	BUC Focal	4	720	SE		
Swainson's Hawk	*Buteo swainsoni*	April 19, 2013	10:27	1	BUC Focal	4	670	W		
Swainson's Hawk	*Buteo swainsoni*	April 11, 2013	10:31	3	BUC Focal	4	1,750	E		
Swainson's Hawk	*Buteo swainsoni*	April 10, 2013	10:40	1	BUC Focal	4	1,000	E		
Swainson's Hawk	*Buteo swainsoni*	April 25, 2013	10:47	1	BUC Focal	4	10	E		
Swainson's Hawk	*Buteo swainsoni*	April 12, 2013	11:03	1	BUC Focal	4	690	N		
Swainson's Hawk	*Buteo swainsoni*	April 24, 2013	11:42	1	BUC Focal	4	450	E		
Swainson's Hawk	*Buteo swainsoni*	April 24, 2013	12:00	1	BUC Focal	4	250	E		
Swainson's Hawk	*Buteo swainsoni*	April 10, 2013	12:14	1	BUC Focal	4	700	NE		
Swainson's Hawk	*Buteo swainsoni*	April 11, 2013	12:15	1	BUC Focal	4	175	NE		

Common Name	Scientific Name	Date	Time	# Observed	Survey Type	Station	Distance	Direction	Easting	Northing
Swainson's Hawk	*Buteo swainsoni*	April 11, 2013	12:25	23	BUC Focal	4	4,500	NW		
Swainson's Hawk	*Buteo swainsoni*	April 11, 2013	12:42	2	BUC Focal	4	2,450	NW		
Swainson's Hawk	*Buteo swainsoni*	April 11, 2013	12:46	1	BUC Focal	4	1,000	NW		
Swainson's Hawk	*Buteo swainsoni*	April 18, 2013	13:05	1	BUC Focal	4	543	SE		
Swainson's Hawk	*Buteo swainsoni*	April 19, 2013	13:29	1	BUC Focal	4	135	E		
Swainson's Hawk	*Buteo swainsoni*	April 11, 2013	13:37	3	BUC Focal	4	238	N		
Swainson's Hawk	*Buteo swainsoni*	April 10, 2013	13:57	2	BUC Focal	4	800	N		
Swainson's Hawk	*Buteo swainsoni*	April 10, 2013	14:20	2	BUC Focal	4	950	E		
Swainson's Hawk	*Buteo swainsoni*	April 17, 2013	14:46	1	BUC Focal	4	1,600	SE		
Swainson's Hawk	*Buteo swainsoni*	April 10, 2013	15:19	1	BUC Focal	4	750	N		
Swainson's Hawk	*Buteo swainsoni*	April 13, 2013	15:46	1	BUC Focal	4	200	E		
Swainson's Hawk	*Buteo swainsoni*	April 10, 2013	15:55	1	BUC Focal	4	1,200	W		
Swainson's Hawk	*Buteo swainsoni*	May 4, 2013	16:00	1	BUC Focal	4	237	N		
Swainson's Hawk	*Buteo swainsoni*	April 25, 2013	9:18	1	BUC Focal	5	700	E		
Swainson's Hawk	*Buteo swainsoni*	April 12, 2013	9:20	1	BUC Focal	5	1,400	W		
Swainson's Hawk	*Buteo swainsoni*	April 25, 2013	11:03	1	BUC Focal	5	450	E		
Swainson's Hawk	*Buteo swainsoni*	April 30, 2013	11:26	1	BUC Focal	5	450	E		
Swainson's Hawk	*Buteo swainsoni*	April 17, 2013	14:09	1	BUC Focal	5	600	NE		
Swainson's Hawk	*Buteo swainsoni*	April 17, 2013	14:47	1	BUC Focal	5	490	SW		

Common Name	Scientific Name	Date	Time	# Observed	Survey Type	Station	Distance	Direction	Easting	Northing
Swainson's Hawk	*Buteo swainsoni*	April 18, 2013	14:48	1	BUC Focal	5	1,400	S		
Swainson's Hawk	*Buteo swainsoni*	April 9, 2013	15:38	1	BUC Focal	5	150	E		
Swainson's Hawk	*Buteo swainsoni*	April 9, 2013	15:40	1	BUC Focal	5	400	E		
Swainson's Hawk	*Buteo swainsoni*	April 9, 2013	15:41	1	BUC Focal	5	600	SE		
Swainson's Hawk	*Buteo swainsoni*	April 9, 2013	15:41	1	BUC Focal	5	600	SE		
Swainson's Hawk	*Buteo swainsoni*	April 9, 2013	15:42	1	BUC Focal	5	700	SE		
Swainson's Hawk	*Buteo swainsoni*	April 18, 2013	16:32	1	BUC Focal	5	1,200	E		
Swainson's Hawk	*Buteo swainsoni*	April 11, 2013	10:27	1	BUC Focal	6	800	NE		
Swainson's Hawk	*Buteo swainsoni*	May 2, 2013	10:31	1	BUC Focal	6	740	SE		
Swainson's Hawk	*Buteo swainsoni*	May 1, 2013	11:45	1	BUC Focal	6	280	SW		
Swainson's Hawk	*Buteo swainsoni*	April 18, 2013	12:30	1	BUC Focal	6	400	S		
Swainson's Hawk	*Buteo swainsoni*	April 10, 2013	12:40	1	BUC Focal	6	200	E		
Swainson's Hawk	*Buteo swainsoni*	April 18, 2013	13:35	1	BUC Focal	6	700	N		
Swainson's Hawk	*Buteo swainsoni*	April 17, 2013	14:06	1	BUC Focal	6	30	SE		
Swainson's Hawk	*Buteo swainsoni*	April 17, 2013	14:40	1	BUC Focal	6	150	NW		
Swainson's Hawk	*Buteo swainsoni*	April 17, 2013	15:00	1	BUC Focal	6	800	E		
Swainson's Hawk	*Buteo swainsoni*	April 12, 2013	16:15	1	BUC Focal	6	750	W		
Swainson's Hawk	*Buteo swainsoni*	April 15, 2013	8:19	8	SBC	8	500	NW		
Swainson's Hawk	*Buteo swainsoni*	April 9, 2013	9:51	1	SBC	10	130	N		

Common Name	Scientific Name	Date	Time	# Observed	Survey Type	Station	Distance	Direction	Easting	Northing
Swainson's Hawk	*Buteo swainsoni*	April 9, 2013	9:51	2	SBC	10	200	N		
Swainson's Hawk	*Buteo swainsoni*	April 9, 2013	10:12	1	SBC	11	280	W		
Swainson's Hawk	*Buteo swainsoni*	April 9, 2013	9:54	1	SBC	19	207	E		
Swainson's Hawk	*Buteo swainsoni*	April 9, 2013	8:42	1	SBC	37	130	W		
Swainson's Hawk	*Buteo swainsoni*	April 9, 2013	8:42	1	SBC	37	304	S		
Swainson's Hawk	*Buteo swainsoni*	April 9, 2013	8:42	2	SBC	37	350	W		
Swainson's Hawk	*Buteo swainsoni*	April 9, 2013	8:42	6	SBC	37	400	W		
Swainson's Hawk	*Buteo swainsoni*	April 11, 2013	10:34	1	SBC	66	1,000	S		
Swainson's Hawk	*Buteo swainsoni*	May 1, 2013	7:47	1	SBC	76	320	W		
Swainson's Hawk	*Buteo swainsoni*	May 1, 2013	7:54	1	SBC	88	600	N		
Swainson's Hawk	*Buteo swainsoni*	April 17, 2013	8:15	1	SBC	88	600	NW		
Swainson's Hawk	*Buteo swainsoni*	April 10, 2013	11:50	1	SBC	103	206	SW		
Swainson's Hawk	*Buteo swainsoni*	April 10, 2013	11:00	1	SBC	105	400	W		
Swainson's Hawk	*Buteo swainsoni*	April 10, 2013	9:55	1	SBC	108	60	E		
Swainson's Hawk	*Buteo swainsoni*	May 1, 2013	10:15	1	SBC	110	139	WNW		
Swainson's Hawk	*Buteo swainsoni*	April 10, 2013	8:23	1	SBC	119	500	NNE		
Swainson's Hawk	*Buteo swainsoni*	April 10, 2013	8:23	1	SBC	119	700	NNE		
Swainson's Hawk	*Buteo swainsoni*	April 10, 2013	8:23	1	SBC	119	1,000	NNE		
Swainson's Hawk	*Buteo swainsoni*	April 10, 2013	8:23	1	SBC	119	280	NNE		

Common Name	Scientific Name	Date	Time	# Observed	Survey Type	Station	Distance	Direction	Easting	Northing
Swainson's Hawk	*Buteo swainsoni*	April 10, 2013	8:42	1	SBC	120	1,200	NNW		
Vaux's Swift	*Chaetura vauxi*	April 16, 2013	8:55	1	BUC Nonfocal	1	n.a.	n.a.		
Vaux's Swift	*Chaetura vauxi*	April 16, 2013	10:01	2	BUC Nonfocal	2	n.a.	n.a.		
Vaux's Swift	*Chaetura vauxi*	April 20, 2013	6:47	2	BUC Nonfocal	5	n.a.	n.a.		
Vaux's Swift	*Chaetura vauxi*	April 26, 2013	6:40	2	BUC Nonfocal	6	n.a.	n.a.		
Vaux's Swift	*Chaetura vauxi*	May 1, 2013	8:04	5	SBC	77	94	S		
Vaux's Swift	*Chaetura vauxi*	May 1, 2013	7:35	2	SBC	89	93	NW		
Vaux's Swift	*Chaetura vauxi*	May 1, 2013	7:15	1	SBC	90	85	N		
Vaux's Swift	*Chaetura vauxi*	May 1, 2013	6:28	2	SBC	92	6	N		
Vesper Sparrow	*Pooecetes gramineus*	May 1, 2013	n.a.	1	Incidental Obs.	n.a.	n.a.	n.a.	664662	3732348
Yellow Warbler	*Setophaga petechia*	April 27, 2013	5:39	1	BUC Nonfocal	2	n.a.	n.a.		
Yellow warbler	*Setophaga petechia*	May 4, 2013	n.a.	1	Mist Net	8	n.a.	n.a.		
Yellow Warbler	*Setophaga petechia*	May 1, 2013	7:30	2	SBC	78	n.a.	n.a.		
Yellow Warbler	*Setophaga petechia*	April 24, 2013	6:59	1	SBC	98	50	N		
Yellow-breasted Chat	*Icteria virens*	April 12, 2013	12:39	3	BUC Nonfocal	1	n.a.	n.a.		
Yellow-headed Blackbird	*Xanthocephalus xanthocephalus*	April 22, 2013	9:21	1	SBC	28	180	E		

4.4.2 Elf Owl and Gila Woodpecker Status

Gila Woodpeckers and Elf Owls are cavity-nesting species that breed in Sonoran Desert wash woodland habitats of the Southwestern United States (Edwards and Schnell 2000, Henry and Gehlbach 1999). The species' populations have declined dramatically in California, and each is listed as endangered in the California Endangered Species Act. Given that each species is known to occur within the region of the Project Site and thus has the potential to occur within suitable habitat (primarily Desert Dry Wash Woodland, or possibly within the palm plantation) in the vicinity of the site, special measures are being taken to adequately determine the presence or absence of these two species. Through the date of this report, no Gila Woodpeckers, Elf Owls, or direct evidence of the presence of either species has been detected within the Project boundary or 1-mile buffer. BBI Biologists detected both species (a pair of Elf Owls presumed to be nesting, and a single male Gila Woodpecker) on multiple occasions at a location within 20 miles

of the Project Site between early May and Late July. The specific location is being withheld to protect the sensitive birds from disturbance.

For the Gila Woodpecker, which is primarily a diurnal species, a special emphasis was placed on establishing a disproportionately high number of SBC point count stations within Desert Dry Wash Habitat. The total area covered by 120 SBC survey stations (assuming a 100-meter survey radius) accounts for 9.8% of the area within the project footprint plus a 1- kilometer buffer (see Methods, Section 3.1), but SBC stations were allocated so as to include 19.5% (0.436 km^2) of the total area of Desert Dry Wash Woodland (2.234 km^2) present within this area.

All three biologists that conducted SBC surveys have had prior exposure to Gila Woodpeckers in other regions where they are more common, were familiar with their identification by sight and calls (and that of similar species), and were instructed to search for and record the species and location information for any special status species at all times while onsite, including while walking transects between SBC survey stations and, of course, during periods of surveying at SBC stations. In general, the project site does not possess a large amount of high quality habitat for breeding woodpeckers of any species, as evidenced by the low number of woodpeckers detected during Spring surveys. Given the range and habitat requirements of woodpecker species, the Ladder-backed Woodpecker (*Picoides scalaris*) is the most likely species to be found breeding on or near the Project site. However, only two detections of this species occurred during SBC surveys and they were likely of the same individual or related to the same pair of birds, given that 1 of these observations occurred at SBC station # 61 and the other occurred at the adjacent station, # 59. No other woodpecker species was observed, and no active or inactive woodpecker cavities were discovered on site during the course of Spring surveys, although no systematic searches for such cavities were conducted during this period.

Elf Owls, which rely predominantly on cavities excavated by woodpecker species for their own nest sites, are primarily active nocturnally. Because of this, diurnal SBC surveys are not sufficient to determine their status on the Project site. To address this, BBI has conducted three rounds of nocturnal, focused Elf Owl call playback surveys in Desert Dry Wash and palm plantation habitats during the months of May and June, 2013, without detecting any Elf Owls. The complete methods and results for these surveys will be reported in BBI's forthcoming Summer Avian Bird Report (see Section 5.0 "Future Surveys"). Additionally, habitat and nest cavity surveys designed specifically to address the suitability of habitat on site for Elf Owls and Gila Woodpeckers were conducted during early July (see Section 5.0) and will be detailed in BBI's Summer report.

4.5 Golden Eagle Prey Abundance

During SBC surveys, biologists walked a total of 196.5 Kilometers along transects between stations and at each station recorded the number of Black-tailed Jackrabbits and Desert Cottontails detected incidentally since leaving the previous station. These data provide relative measures of abundance which are spatially linked to SBC station locations for these two species. In total, 17 Black-tailed Jackrabbits and one Desert Cottontail were observed, which computes to 0.086 and 0.005 individuals per kilometer of transect, respectively. The complete results of these surveys can be found in Appendix B, Table12, which indicates for each SBC station the total numbers of individuals detected by species, as well as the standardized measure of the number of individuals detected per kilometer walked en route to the station. Because SBC survey transects were surveyed in forward and reverse order on alternating surveys the same length of transect (e.g., connecting SBC stations # 9 and 10) may be associated with different SBC stations (e.g., associated with SBC station # 10 when surveyed in forward order, and with SBC station #9 when surveyed in reverse order), but the values provide general spatial data on the distribution of lagomorphs on site. Investigation of these spatial data reveals two general areas within the project footprint and surrounding 1-kilometer buffer where nearly all Black-tailed Jackrabbit observations occurred. The majority of observations occurred in the southeastern quadrant of the site, both north and south of Interstate 10, and a second, smaller cluster of observations occurred in the north-central part of the site, including observations at SBC stations # 20, 35 and 37. The only Desert Cottontail observation occurred near an abandoned house along the edge of the palm plantation on the northwest edge of the Project boundary, close to SBC station # 8. These surveys were conducted during the morning hours (typically between 0500-1100h) in the course of conducting SBC surveys and may not be reflective of

true lagomorph densities on site if these species are more active at other times of day or night. However, the data provide information about spatial variation in relative density during the diurnal hours, which is when Golden Eagles primarily hunt.

5.0 FUTURE SURVEYS

BBI is in the process of preparing a summary of results from Summer, 2013 avian surveys, including (1) four weeks of BUC surveys (May 6-June 1) in which each BUC station was surveyed once per week for 8 hours, (2) eight weeks of SBC surveys (May 6-June 29) in which all SBC stations were surveyed once per week and the SBC survey area was increased from including the project footprint plus a 1-km buffer (120 stations; two weeks, through May 18) to including the project footprint plus a 1-mile buffer (176 stations; six weeks, beginning May 19), (3) six weeks of mist-net surveys (May 6-June 15) in which six mist nest stations (3 in dry wash woodland and 3 in a palm plantation on the northwest side of the site) were each surveyed for three consecutive days with an array of twelve 12-meter mist nets, (4) Focused Elf Owl call playback surveys in dry wash woodland and palm plantation habitat on and within 1 kilometer of the project footprint, and (5) habitat evaluation surveys aimed at assessing the availability of suitable breeding habitat for both Gila Woodpecker and Elf owls on and within 1 kilometer of the project footprint. With permission from a private landowner, summer mist-net and SBC surveys were expanded (beginning on May 19) to include habitat within a privately owned palm plantation, approximately 530 acres (215 ha) in area, adjacent to the Project Site and results from these surveys will be included in the Summer, 2013 Avian Survey summary.

BBI has proposed to Palen Solar Holdings to conduct avian surveys during the Fall, 2013, to continue to inform the baseline for BBCS. When finalized, those surveys will be presented to the resource agencies for review.

6.0 LITERATURE CITED

Edwards, Holly H. and Gary D. Schnell. 2000. Gila Woodpecker (Melanerpes uropygialis), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu.bnaproxy.birds.cornell.edu/bna/species/532

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APPENDIX A. SURVEY DATES, TIMES AND WEATHER CONDITIONS

Date	Type	Time	Weather	Biologists
4/8/2013	Bird Use Count	1115-1915h	Start: 71° F, 1-25% cloud cover, Light Wind out of the NW End: 68° F, 1-25% cloud cover, Strong Wind out of the W No rain; No fog; No snow	Elias Elias Cassidy Grattan Chris Niemela Andrew Tillinghast
4/9/2013	Bird Use Count	1116-1916h	Start: 73.7° F, 0% cloud cover, Strong Wind out of the NW End: 70.2° F, 0% cloud cover, Breeze out of the NW No rain; No fog; No snow	Zachary Ormsby Andrew Tillinghast
4/9/2013	Bird Use Count	1117-1917h	Start: 74° F, 1-25% cloud cover, Strong Wind out of the NW End: 71° F, 0% cloud cover, Light Wind out of the NW No rain; No fog; No snow	Cassidy Grattan
4/9/2013	Bird Use Count	1120-1920h	Start: 74° F, 0% cloud cover, Strong Wind out of the NW End: 70° F, 0% cloud cover, Strong Wind out of the NW No rain; No fog; No snow	Chris Niemela
4/9/2013	Bird Use Count	1123-1923h	Start: 73° F, 0% cloud cover, Strong Wind out of the NW End: 72° F, 0% cloud cover, Light Wind out of the NW No rain; No fog; No snow	Elias Elias
4/10/2013	Bird Use Count	0844-1644h	Start: 66° F, 0% cloud cover, Light Wind out of the N End: 84° F, 0% cloud cover, Breeze out of the NW No rain; No fog; No snow	Andrew Tillinghast
4/10/2013	Bird Use Count	0850-1650h	Start: 68.2° F, 1-25% cloud cover, Strong Wind out of the NW End: 83.1° F, 0% cloud cover, Light Wind out of the N No rain; No fog; No snow	Zachary Ormsby
4/10/2013	Bird Use Count	0850-1651h	Start: 71° F, 1-25% cloud cover, Light Wind out of the N End: 85° F, 0% cloud cover, Calm out of the N No rain; No fog; No snow	Cassidy Grattan
4/10/2013	Bird Use Count	0909-1640h	Start: 68.2° F, 1-25% cloud cover, Strong Wind out of the NW End: 85.6° F, 0% cloud cover, Strong Wind out of the NW No rain; No fog; No snow	Jason Bennett
4/10/2013	Bird Use Count	0930-1640h	Start: 69° F, 0% cloud cover, Strong Wind out of the NW End: 82° F, 0% cloud cover, Strong Wind out of the NW No rain; No fog; No snow	Chris Niemela
4/11/2013	Bird Use Count	0600-1400h	Start: 54° F, 1-25% cloud cover, Calm out of the W End: 98° F, 1-25% cloud cover, Breeze out of the SE No rain; No fog; No snow	Cassidy Grattan
4/11/2013	Bird Use Count	0601-1401h	Start: 52° F, 0% cloud cover, Breeze out of the W End: 89° F, 1-25% cloud cover, Calm out of the N No rain; No fog; No snow	Andrew Tillinghast
4/11/2013	Bird Use Count	0610-1410h	Start: 51.8° F, 1-25% cloud cover, Breeze out of the W End: 99.1° F, 1-25% cloud cover, Breeze out of the NW No rain; No fog; No snow	Jason Bennett
4/12/2013	Bird Use Count	0839-1639h	Start: 74° F, 1-25% cloud cover, Calm out of the N End: 96° F, 0% cloud cover, Calm out of the S No rain; No fog; No snow	Zachary Ormsby
4/12/2013	Bird Use Count	0840-1640h	Start: 83° F, 1-25% cloud cover, Calm out of the N End: 90° F, 1-25% cloud cover, Breeze out of the S No rain; No fog; No snow	Cassidy Grattan
4/12/2013	Bird Use Count	0843-1543h	Start: 75° F, 26-50% cloud cover, Breeze out of the NW End: 88° F, 0% cloud cover, Breeze out of the N No rain; No fog; No snow	Andrew Tillinghast
4/12/2013	Bird Use Count	0850-1650h	Start: 74.7° F, 1-25% cloud cover, Breeze out of the NW End: 96.1° F, 1-25% cloud cover, Calm out of the W No rain; No fog; No snow	Jason Bennett

Date	Type	Time	Weather	Biologists
4/13/2013	Bird Use Count	1123-1823h	Start: 89.1° F, 26-50% cloud cover, Light Wind out of the NE End: 87.8° F, 1-25% cloud cover, Light Wind out of the SW No rain; No fog; No snow	Jason Bennett
4/13/2013	Bird Use Count	1123-1923h	Start: 88° F, 0% cloud cover, Light Wind out of the E End: 83° F, 26-50% cloud cover, Light Wind out of the SW No rain; No fog; No snow	Chris Niemela
4/13/2013	Bird Use Count	1127-1930h	Start: 91° F, 51-75% cloud cover, Light Wind out of the E End: 82° F, 51-75% cloud cover, Calm out of the SW No rain; No fog; No snow	Cassidy Grattan
4/13/2013	Bird Use Count	1133-1933h	Start: 87° F, 26-50% cloud cover, Breeze out of the E End: 82° F, 26-50% cloud cover, Light Wind out of the SW No rain; No fog; No snow	Andrew Tillinghast
4/13/2013	Bird Use Count	1145-1923h	Start: 1923° F, 26-50% cloud cover, Light Wind out of the SW End: 87° F, 51-75% cloud cover, Light Wind out of the W No rain; No fog; No snow	Elias Elias
4/15/2013	Bird Use Count	0845-1045h	Start: 77° F, 0% cloud cover, Light Wind out of the E End: 86° F, 0% cloud cover, Light Wind out of the SW No rain; No fog; No snow	Jason Bennett
4/15/2013	Bird Use Count	0845-1645h	Start: 73° F, 0% cloud cover, Breeze out of the SE End: 80° F, 0% cloud cover, Breeze out of the SW No rain; No fog; No snow	Andrew Tillinghast
4/15/2013	Bird Use Count	0845-1645h	Start: 78° F, 0% cloud cover, Breeze out of the SE End: 80° F, 0% cloud cover, Strong Wind out of the S No rain; No fog; No snow	Cassidy Grattan
4/16/2013	Bird Use Count	0551-1351h	Start: 56° F, 0% cloud cover, Light Wind out of the N End: 73° F, 0% cloud cover, Light Wind out of the N No rain; No fog; No snow	Jason Bennett
4/16/2013	Bird Use Count	0555-1355h	Start: 57° F, 0% cloud cover, Calm out of the N End: 84° F, 1-25% cloud cover, Light Wind out of the N No rain; No fog; No snow	Cassidy Grattan
4/16/2013	Bird Use Count	0601-1401h	Start: 57° F, 0% cloud cover, Strong Wind out of the N End: 78° F, 0% cloud cover, Light Wind out of the NW No rain; No fog; No snow	Andrew Tillinghast
4/17/2013	Bird Use Count	0601-1401h	Start: 57° F, 0% cloud cover, Strong Wind out of the N End: 78° F, 0% cloud cover, Light Wind out of the NW No rain; No fog; No snow	Andrew Tillinghast
4/17/2013	Bird Use Count	0838-1638h	Start: 65° F, 0% cloud cover, Strong Wind out of the N End: 76° F, 0% cloud cover, Light Wind out of the N No rain; No fog; No snow	Jason Bennett
4/17/2013	Bird Use Count	0838-1638h	Start: 64° F, 0% cloud cover, Strong Wind out of the NW End: 72° F, 0% cloud cover, Strong Wind out of the NW No rain; No fog; No snow	Elias Elias
4/17/2013	Bird Use Count	0845-1645h	Start: 70° F, 0% cloud cover, Strong Wind out of the NW End: 74° F, 0% cloud cover, Strong Wind out of the NW No rain; No fog; No snow	Cassidy Grattan
4/17/2013	Bird Use Count	1200-1927h	Start: 73° F, 0% cloud cover, Strong Wind out of the NW End: 68° F, 0% cloud cover, Strong Wind out of the NW No rain; No fog; No snow	Karly Moore
4/18/2013	Bird Use Count	0838-1638h	Start: 64° F, 0% cloud cover, Strong Wind out of the N End: 76° F, 0% cloud cover, Light Wind out of the N No rain; No fog; No snow	Elias Elias
4/18/2013	Bird Use Count	1127-1927h	Start: 72° F, 0% cloud cover, Strong Wind out of the N End: 69° F, 0% cloud cover, Breeze out of the N No rain; No fog; No snow	Andrew Tillinghast

Date	Type	Time	Weather	Biologists
4/18/2013	Bird Use Count	1127-1927h	Start: 69° F, 0% cloud cover, Strong Wind out of the N End: 70° F, 0% cloud cover, Breeze out of the NW No rain; No fog; No snow	Karly Moore
4/18/2013	Bird Use Count	1127-1927h	Start: 72° F, 0% cloud cover, Light Wind out of the N End: 64° F, 0% cloud cover, Calm out of the NW No rain; No fog; No snow	Cassidy Grattan
4/18/2013	Bird Use Count	1131-1930h	Start: 77° F, 0% cloud cover, Light Wind out of the N End: 70° F, 0% cloud cover, Breeze out of the N No rain; No fog; No snow	Jason Bennett
4/19/2013	Bird Use Count	0837-1637h	Start: 71° F, 0% cloud cover, Breeze out of the NW End: 84° F, 1-25% cloud cover, Breeze out of the NW No rain; No fog; No snow	Cassidy Grattan
4/19/2013	Bird Use Count	0838-1638h	Start: 66° F, 0% cloud cover, Breeze out of the N End: 82° F, 1-25% cloud cover, Breeze out of the NW No rain; No fog; No snow	Karly Moore
4/19/2013	Bird Use Count	0839-1639h	Start: 65° F, 0% cloud cover, Breeze out of the NW End: 85° F, 0% cloud cover, Light Wind out of the NW No rain; No fog; No snow	Andrew Tillinghast
4/19/2013	Bird Use Count	0850-1650h	Start: 69° F, 0% cloud cover, Breeze out of the N End: 88° F, 1-25% cloud cover, Breeze out of the NW No rain; No fog; No snow	Jason Bennett
4/19/2013	Bird Use Count	1000-1638h	Start: 73° F, 0% cloud cover, Light Wind out of the NW End: 85° F, 0% cloud cover, Calm out of the N No rain; No fog; No snow	Elias Elias
4/20/2013	Bird Use Count	0547-1347h	Start: 55° F, 0% cloud cover, Light Wind out of the NW End: 92° F, 0% cloud cover, Light Wind out of the E No rain; No fog; No snow	Elias Elias
4/20/2013	Bird Use Count	0547-1347h	Start: 56° F, 1-25% cloud cover, Breeze out of the NW End: 90° F, 1-25% cloud cover, Breeze out of the NW No rain; No fog; No snow	Cassidy Grattan
4/20/2013	Bird Use Count	1128-1928h	Start: 81° F, 1-25% cloud cover, Breeze out of the NW End: 80° F, 0% cloud cover, Breeze out of the SE No rain; No fog; No snow	Andrew Tillinghast
4/22/2013	Bird Use Count	0545-1345h	Start: 63° F, 0% cloud cover, Calm out of the N End: 96° F, 0% cloud cover, Breeze out of the SE No rain; No fog; No snow	Andrew Tillinghast
4/22/2013	Bird Use Count	0545-1345h	Start: 65° F, 0% cloud cover, Breeze out of the S End: 96° F, 0% cloud cover, Calm out of the SE No rain; No fog; No snow	Jason Bennett
4/22/2013	Bird Use Count	0548-1348h	Start: 65° F, 0% cloud cover, Light Wind out of the S End: 100° F, 0% cloud cover, Strong Wind out of the S No rain; No fog; No snow	Elias Elias
4/22/2013	Bird Use Count	0554-1354h	Start: 65° F, 0% cloud cover, Calm out of the E End: 95° F, 1-25% cloud cover, Light Wind out of the S No rain; No fog; No snow	Cassidy Grattan
4/22/2013	Bird Use Count	0950-1650h	Start: 81° F, 0% cloud cover, Calm out of the N End: 86° F, 0% cloud cover, Calm out of the N No rain; No fog; No snow	Jason Bennett
4/23/2013	Bird Use Count	0837-1637h	Start: 76° F, 0% cloud cover, Strong Wind out of the NE End: 89° F, 0% cloud cover, Light Wind out of the N No rain; No fog; No snow	Andrew Tillinghast
4/23/2013	Bird Use Count	0837-1637h	Start: 74° F, 1-25% cloud cover, Strong Wind out of the NE End: 85° F, 1-25% cloud cover, Light Wind out of the NE No rain; No fog; No snow	Cassidy Grattan

Date	Type	Time	Weather	Biologists
4/23/2013	Bird Use Count	0837-1744h	Start: 75° F, 1-25% cloud cover, Strong Wind out of the N End: 85° F, 1-25% cloud cover, Strong Wind out of the NE No rain; No fog; No snow	Karly Moore
4/23/2013	Bird Use Count	0843-1707h	Start: 76° F, 0% cloud cover, Strong Wind out of the N End: 87° F, 0% cloud cover, Light Wind out of the N No rain; No fog; No snow	Elias Elias
4/24/2013	Bird Use Count	1131-1931h	Start: 84° F, 76-99% cloud cover, Breeze out of the NE End: 85° F, 0% cloud cover, Light Wind out of the N No rain; No fog; No snow	Jason Bennett
4/24/2013	Bird Use Count	1131-1931h	Start: 81° F, 76-99% cloud cover, Light Wind out of the NE End: 84° F, 0% cloud cover, Light Wind out of the E No rain; No fog; No snow	Elias Elias
4/24/2013	Bird Use Count	1131-1931h	Start: 87° F, 76-99% cloud cover, Calm out of the W End: 84° F, 0% cloud cover, Light Wind out of the SE No rain; No fog; No snow	Karly Moore
4/24/2013	Bird Use Count	1131-1931h	Start: 88° F, 26-50% cloud cover, Calm out of the SE End: 72° F, 1-25% cloud cover, Calm out of the SE No rain; No fog; No snow	Cassidy Grattan
4/24/2013	Bird Use Count	1131-1931h	Start: 81° F, 51-75% cloud cover, Breeze out of the E End: 81° F, 0% cloud cover, Breeze out of the E No rain; No fog; No snow	Andrew Tillinghast
4/25/2013	Bird Use Count	0831-1631h	Start: 70° F, 0% cloud cover, Light Wind out of the SE End: 86° F, 0% cloud cover, Light Wind out of the NE No rain; No fog; No snow	Elias Elias
4/25/2013	Bird Use Count	0836-1636h	Start: 73° F, 0% cloud cover, Breeze out of the E End: 84° F, 1-25% cloud cover, Light Wind out of the NE No rain; No fog; No snow	Cassidy Grattan
4/25/2013	Bird Use Count	0837-1637h	Start: 69° F, 0% cloud cover, Light Wind out of the SE End: 90° F, 0% cloud cover, Light Wind out of the N No rain; No fog; No snow	Karly Moore
4/25/2013	Bird Use Count	0900-1700h	Start: 70° F, 0% cloud cover, Breeze out of the S End: 90° F, 0% cloud cover, Breeze out of the NW No rain; No fog; No snow	Jason Bennett
4/25/2013	Bird Use Count	0901-1701h	Start: 77° F, 0% cloud cover, Light Wind out of the E End: 95° F, 0% cloud cover, Breeze out of the N No rain; No fog; No snow	Andrew Tillinghast
4/26/2013	Bird Use Count	0540-1340h	Start: 62° F, 0% cloud cover, Breeze out of the S End: 90° F, 0% cloud cover, Light Wind out of the E No rain; No fog; No snow	Karly Moore
4/26/2013	Bird Use Count	0550-1350h	Start: 59° F, 0% cloud cover, Calm out of the SE End: 97° F, 1-25% cloud cover, Breeze out of the S No rain; No fog; No snow	Cassidy Grattan
4/26/2013	Bird Use Count	0550-1350h	Start: 64° F, 0% cloud cover, Breeze out of the S End: 94° F, 0% cloud cover, Breeze out of the NE No rain; No fog; No snow	Jason Bennett
4/26/2013	Bird Use Count	1103-1931h	Start: 83° F, 0% cloud cover, Breeze out of the E End: 83° F, 0% cloud cover, Calm out of the N No rain; No fog; No snow	Andrew Tillinghast
4/27/2013	Bird Use Count	0539-1339h	Start: 66° F, 0% cloud cover, Breeze out of the NW End: 98° F, 0% cloud cover, Light Wind out of the NE No rain; No fog; No snow	Karly Moore
4/29/2013	Bird Use Count	0836-1636h	Start: 87° F, 0% cloud cover, Breeze out of the NW End: 107° F, 0% cloud cover, Breeze out of the W No rain; No fog; No snow	Andrew Tillinghast

Date	Type	Time	Weather	Biologists
4/29/2013	Bird Use Count	0836-1636h	Start: 90° F, 0% cloud cover, Light Wind out of the NW End: 104° F, 0% cloud cover, Light Wind out of the SW No rain; No fog; No snow	Elias Elias
4/29/2013	Bird Use Count	0836-1636h	Start: 87° F, 0% cloud cover, Light Wind out of the NW End: 102° F, 0% cloud cover, Strong Wind out of the SW No rain; No fog; No snow	Cassidy Grattan
4/29/2013	Bird Use Count	0842-1642h	Start: 89° F, 0% cloud cover, Light Wind out of the NW End: 105° F, 0% cloud cover, Light Wind out of the SW No rain; No fog; No snow	Jason Bennett
4/30/2013	Bird Use Count	0836-1636h	Start: 83° F, 26-50% cloud cover, Calm out of the NE End: 98° F, 76-99% cloud cover, Strong Wind out of the SW No rain; No fog; No snow	Karly Moore
4/30/2013	Bird Use Count	0836-1636h	Start: 83° F, 1-25% cloud cover, Calm out of the SW End: 100° F, 1-25% cloud cover, Calm out of the SW No rain; No fog; No snow	Jason Bennett
4/30/2013	Bird Use Count	0836-1636h	Start: 81° F, 26-50% cloud cover, Light Wind out of the E End: 97° F, 51-75% cloud cover, Strong Wind out of the SW No rain; No fog; No snow	Elias Elias
4/30/2013	Bird Use Count	1136-1936h	Start: 94° F, 1-25% cloud cover, Breeze out of the E End: 88° F, 1-25% cloud cover, Light Wind out of the S No rain; No fog; No snow	Andrew Tillinghast
4/30/2013	Bird Use Count	1140-1940h	Start: 96° F, 1-25% cloud cover, Strong Wind out of the SW End: 87° F, 1-25% cloud cover, Light Wind out of the SW No rain; No fog; No snow	Cassidy Grattan
5/1/2013	Bird Use Count	0836-1636h	Start: 80° F, 0% cloud cover, Strong Wind out of the N End: 94° F, 0% cloud cover, Light Wind out of the N No rain; No fog; No snow	Cassidy Grattan
5/1/2013	Bird Use Count	0836-1636h	Start: 83° F, 0% cloud cover, Strong Wind out of the N End: 92° F, 0% cloud cover, Strong Wind out of the NW No rain; No fog; No snow	Karly Moore
5/1/2013	Bird Use Count	0836-1636h	Start: 83° F, 0% cloud cover, Strong Wind out of the N End: 94° F, 0% cloud cover, Light Wind out of the NW No rain; No fog; No snow	Elias Elias
5/1/2013	Bird Use Count	0836-1636h	Start: 84° F, 0% cloud cover, Strong Wind out of the N End: 96° F, 0% cloud cover, Light Wind out of the N No rain; No fog; No snow	Jason Bennett
5/1/2013	Bird Use Count	0836-1636h	Start: 87° F, 0% cloud cover, Strong Wind out of the NW End: 94° F, 0% cloud cover, Light Wind out of the N No rain; No fog; No snow	Andrew Tillinghast
5/2/2013	Bird Use Count	0534-1334h	Start: 67° F, 0% cloud cover, Strong Wind out of the N End: 86° F, 0% cloud cover, Calm out of the N No rain; No fog; No snow	Jason Bennett
5/2/2013	Bird Use Count	0534-1334h	Start: 67° F, 0% cloud cover, Strong Wind out of the N End: 83° F, 0% cloud cover, Strong Wind out of the NW No rain; No fog; No snow	Karly Moore
5/2/2013	Bird Use Count	0534-1422h	Start: 68° F, 0% cloud cover, Strong Wind out of the N End: 86° F, 0% cloud cover, Strong Wind out of the NW No rain; No fog; No snow	Elias Elias
5/2/2013	Bird Use Count	0535-1335h	Start: 65° F, 0% cloud cover, Strong Wind out of the N End: 86° F, 0% cloud cover, Strong Wind out of the N No rain; No fog; No snow	Cassidy Grattan
5/2/2013	Bird Use Count	0549-1349h	Start: 69° F, 0% cloud cover, Strong Wind out of the N End: 89° F, 0% cloud cover, Light Wind out of the N No rain; No fog; No snow	Andrew Tillinghast

Date	Type	Time	Weather	Biologists
5/3/2013	Bird Use Count	0835-1635h	Start: 78° F, 1-25% cloud cover, Breeze out of the N End: 98° F, 1-25% cloud cover, Breeze out of the NE No rain; No fog; No snow	Cassidy Grattan
5/3/2013	Bird Use Count	0838-1638h	Start: 80° F, 26-50% cloud cover, Light Wind out of the NW End: 94° F, 1-25% cloud cover, Light Wind out of the E No rain; No fog; No snow	Karly Moore
5/3/2013	Bird Use Count	0840-1640h	Start: 80° F, 1-25% cloud cover, Calm out of the N End: 98° F, 1-25% cloud cover, Calm out of the N No rain; No fog; No snow	Jason Bennett
5/3/2013	Bird Use Count	0841-1641h	Start: 78° F, 1-25% cloud cover, Breeze out of the N End: 99° F, 1-25% cloud cover, Breeze out of the NE No rain; No fog; No snow	Andrew Tillinghast
5/4/2013	Bird Use Count	0834-1634h	Start: 82° F, 0% cloud cover, Calm out of the N End: 94° F, 51-75% cloud cover, Light Wind out of the S No rain; No fog; No snow	Karly Moore
4/11/2013	Mist Net	0600-1200h	Start: 55.6° F, 1-25% cloud cover, Calm out of the N End: 93° F, 1-25% cloud cover, Breeze out of the N No rain; No fog; No snow	Elizabeth Donadio Chris McCreedy Chris Niemela
4/12/2013	Mist Net	0603-1020h	Start: 59° F, 1-25% cloud cover, Calm out of the W End: 81° F, 1-25% cloud cover, Calm out of the SW No rain; No fog; No snow	Elizabeth Donadio Chris McCreedy Chris Niemela
4/19/2013	Mist Net	0525-1800h	Start: 60° F, 0% cloud cover, Breeze out of the N End: 80° F, 0% cloud cover, Calm out of the N No rain; No fog; No snow	Pete Bloom Elizabeth Donadio Michael Kuehn Chris McCreedy
4/20/2013	Mist Net	0530-1030h	Start: 63° F, 1-25% cloud cover, Breeze out of the W End: 81° F, 1-25% cloud cover, Light Wind out of the NW No rain; No fog; No snow	Elizabeth Donadio Chris McCreedy Karly Moore
4/25/2013	Mist Net	0530-1100h	Start: 62° F, 1-25% cloud cover, Breeze out of the NE End: 80° F, 0% cloud cover, Breeze out of the S No rain; No fog; No snow	Pete Bloom Elizabeth Donadio Chris McCreedy Emily Strelow
4/26/2013	Mist Net	0555-1130h	Start: 63° F, 0% cloud cover, Breeze out of the S End: 84° F, 0% cloud cover, Breeze out of the E No rain; No fog; No snow	Pete Bloom Elizabeth Donadio Chris McCreedy
5/3/2013	Mist Net	0510-1115h	Start: 66° F, 1-25% cloud cover, Light Wind out of the W End: 92° F, 26-50% cloud cover, Breeze out of the SE No rain; No fog; No snow	Pete Bloom Elizabeth Donadio Chris McCreedy
5/4/2013	Mist Net	0550-1050h	Start: 67° F, 1-25% cloud cover, Calm out of the NE End: 90° F, 1-25% cloud cover, Breeze out of the NE No rain; No fog; No snow	Pete Bloom Elizabeth Donadio Chris McCreedy Emily Strelow
4/9/2013	Small Bird Count	0622-1058h	Start: 58° F, 1-25% cloud cover, Breeze out of the NW End: 69° F, 1-25% cloud cover, Strong Wind out of the NW No rain; No fog; No snow	Elizabeth Donadio
4/9/2013	Small Bird Count	0644-1143h	Start: 67.5° F, 1-25% cloud cover, Light Wind out of the NW End: 68.4° F, 1-25% cloud cover, Calm out of the NW No rain; No fog; No snow	Chris McCreedy
4/10/2013	Small Bird Count	0605-1134h	Start: 66° F, 0% cloud cover, Breeze out of the NW End: 76° F, 1-25% cloud cover, Light Wind out of the NW No rain; No fog; No snow	Elizabeth Donadio
4/10/2013	Small Bird Count	0631-1200h	Start: 60° F, 0% cloud cover, Light Wind out of the NW End: 74° F, 0% cloud cover, Strong Wind out of the NW No rain; No fog; No snow	Chris McCreedy

Date	Type	Time	Weather	Biologists
4/11/2013	Small Bird Count	0612-1131h	Start: 61° F, 1-25% cloud cover, Calm out of the N End: 94° F, 1-25% cloud cover, Breeze out of the SE No rain; No fog; No snow	Emily Strelow
4/12/2013	Small Bird Count	0607-1059h	Start: 58° F, 1-25% cloud cover, Calm out of the N End: 92° F, 1-25% cloud cover, Breeze out of the NW No rain; No fog; No snow	Emily Strelow
4/13/2013	Small Bird Count	0622-1152h	Start: 66° F, 1-25% cloud cover, Calm out of the NW End: 95.0° F, 26-50% cloud cover, Light Wind out of the NE No rain; No fog; No snow	Elizabeth Donadio
4/13/2013	Small Bird Count	0624-1208h	Start: 63° F, 1-25% cloud cover, Calm out of the N End: 89° F, 26-50% cloud cover, Calm out of the N No rain; No fog; No snow	Chris McCreedy
4/14/2013	Small Bird Count	0619-1108h	Start: 62° F, 0% cloud cover, Breeze out of the SE End: 90° F, 0% cloud cover, Breeze out of the S No rain; No fog; No snow	Emily Strelow
4/15/2013	Small Bird Count	0606-1109h	Start: 63° F, 1-25% cloud cover, Breeze out of the SE End: 85° F, 0% cloud cover, Light Wind out of the SE No rain; No fog; No snow	Elizabeth Donadio
4/15/2013	Small Bird Count	0611-1034h	Start: 63.9° F, 1-25% cloud cover, Breeze out of the E End: 73.8° F, 0% cloud cover, Breeze out of the E No rain; No fog; No snow	Chris McCreedy
4/15/2013	Small Bird Count	0619-1108h	Start: 62° F, 0% cloud cover, Breeze out of the SE End: 90° F, 0% cloud cover, Breeze out of the S No rain; No fog; No snow	Emily Strelow
4/16/2013	Small Bird Count	0604-1135h	Start: 57° F, 0% cloud cover, Strong Wind out of the N End: 76° F, 0% cloud cover, Light Wind out of the NW No rain; No fog; No snow	Elizabeth Donadio
4/16/2013	Small Bird Count	0614-1105h	Start: 56° F, 0% cloud cover, Strong Wind out of the N End: 83° F, 0% cloud cover, Light Wind out of the NE No rain; No fog; No snow	Emily Strelow
4/16/2013	Small Bird Count	0618-1143h	Start: 56° F, 0% cloud cover, Strong Wind out of the NE End: 71° F, 1-25% cloud cover, Light Wind out of the NW No rain; No fog; No snow	Chris McCreedy
4/17/2013	Small Bird Count	0608-0909h	Start: 57° F, 1-25% cloud cover, Light Wind out of the W End: 66° F, 0% cloud cover, Strong Wind out of the NW No rain; No fog; No snow	Elizabeth Donadio
4/17/2013	Small Bird Count	0625-0903h	Start: 58° F, 1-25% cloud cover, Breeze out of the W End: 64° F, 0% cloud cover, Calm out of the NW No rain; No fog; No snow	Chris McCreedy
4/18/2013	Small Bird Count	0556-1002h	Start: 55° F, 1-25% cloud cover, Breeze out of the N End: 73° F, 0% cloud cover, Light Wind out of the N No rain; No fog; No snow	Emily Strelow
4/18/2013	Small Bird Count	0622-0939h	Start: 53° F, 0% cloud cover, Breeze out of the NW End: 70° F, 0% cloud cover, Strong Wind out of the NW No rain; No fog; No snow	Elizabeth Donadio
4/18/2013	Small Bird Count	0624-0846h	Start: 56° F, 0% cloud cover, Light Wind out of the NW End: 66° F, 0% cloud cover, Strong Wind out of the NW No rain; No fog; No snow	Chris McCreedy
4/22/2013	Small Bird Count	0550-1054h	Start: 64° F, 0% cloud cover, Calm out of the S End: 92° F, 1-25% cloud cover, Breeze out of the E No rain; No fog; No snow	Elizabeth Donadio
4/22/2013	Small Bird Count	0611-1051h	Start: 70° F, 0% cloud cover, Calm out of the SE End: 85° F, 1-25% cloud cover, Breeze out of the SE No rain; No fog; No snow	Chris McCreedy

Date	Type	Time	Weather	Biologists
4/23/2013	Small Bird Count	0553-1033h	Start: 70° F, 1-25% cloud cover, Light Wind out of the NW End: 84° F, 1-25% cloud cover, Strong Wind out of the N No rain; No fog; No snow	Elizabeth Donadio
4/23/2013	Small Bird Count	0600-1115h	Start: 72° F, 1-25% cloud cover, Strong Wind out of the NW End: 82° F, 0% cloud cover, Strong Wind out of the NW No rain; No fog; No snow	Chris McCreedy
4/24/2013	Small Bird Count	0556-1132h	Start: 57° F, 76-99% cloud cover, Calm out of the S End: 91° F, 51-75% cloud cover, Calm out of the NW No rain; No fog; No snow	Elizabeth Donadio
4/24/2013	Small Bird Count	0603-1133h	Start: 61° F, 51-75% cloud cover, Breeze out of the SW End: 83° F, 51-75% cloud cover, Breeze out of the SE No rain; No fog; No snow	Chris McCreedy
4/24/2013	Small Bird Count	0604-1023h	Start: 58° F, 51-75% cloud cover, Calm out of the N End: 88° F, 51-75% cloud cover, Calm out of the SW No rain; No fog; No snow	Emily Strelow
4/26/2013	Small Bird Count	0552-1023h	Start: 60° F, 0% cloud cover, Breeze out of the S End: 84° F, 0% cloud cover, Breeze out of the S No rain; No fog; No snow	Emily Strelow
4/27/2013	Small Bird Count	0551-1030h	Start: 66° F, 0% cloud cover, Breeze out of the NW End: 86° F, 0% cloud cover, Breeze out of the N No rain; No fog; No snow	Emily Strelow
4/28/2013	Small Bird Count	0554-1020h	Start: 66° F, 0% cloud cover, Breeze out of the N End: 93° F, 0% cloud cover, Breeze out of the N No rain; No fog; No snow	Emily Strelow
4/29/2013	Small Bird Count	0542-0938h	Start: 76° F, 0% cloud cover, Light Wind out of the W End: 91° F, 0% cloud cover, Strong Wind out of the NW No rain; No fog; No snow	Chris McCreedy
4/29/2013	Small Bird Count	0549-1031h	Start: 77° F, 0% cloud cover, Breeze out of the W End: 96° F, 0% cloud cover, Light Wind out of the NW No rain; No fog; No snow	Elizabeth Donadio
4/29/2013	Small Bird Count	0554-1018h	Start: 64° F, 0% cloud cover, Calm out of the S End: 90° F, 0% cloud cover, Breeze out of the N No rain; No fog; No snow	Emily Strelow
4/30/2013	Small Bird Count	0551-1111h	Start: 67° F, 1-25% cloud cover, Calm out of the SW End: 96° F, 26-50% cloud cover, Calm out of the NE No rain; No fog; No snow	Elizabeth Donadio
4/30/2013	Small Bird Count	0555-1105h	Start: 71° F, 1-25% cloud cover, Breeze out of the SW End: 94° F, 1-25% cloud cover, Breeze out of the S No rain; No fog; No snow	Chris McCreedy
5/1/2013	Small Bird Count	0540-1036h	Start: 72° F, 0% cloud cover, Calm out of the NW End: 87° F, 0% cloud cover, Light Wind out of the N No rain; No fog; No snow	Elizabeth Donadio
5/1/2013	Small Bird Count	0546-1031h	Start: 68° F, 1-25% cloud cover, Calm out of the SW End: 84° F, 0% cloud cover, Strong Wind out of the N No rain; No fog; No snow	Emily Strelow
5/1/2013	Small Bird Count	0608-1042h	Start: 67° F, 1-25% cloud cover, Breeze out of the W End: 85° F, 0% cloud cover, Strong Wind out of the NW No rain; No fog; No snow	Chris McCreedy

APPENDIX B. SUPPLEMENTAL TABLES

Table 10. Vegetation Cover Classes at SBC Stations

The following table lists all 120 SBC stations and percentage of area within a 100-meter radius circle around each that is comprised of the indicated vegetative cover type. Vegetation cover types were generated using GIS software and are based on habitat mapping conducted by AECOM during 2009. Parts of SBC stations 119 and 120 fell outside of the mapped area and are undescribed in the table (% Undetermined) but consist primarily of Sonoran Creosote Scrub habitat.

Station	% Agriculture	% Dry Wash Woodland	% Developed	% Creosote Scrub	% Dune	% Unvegetated Wash	% Undetermined
1	0.0	46.4	0.0	53.6	0.0	0.0	0.0
2	0.0	45.9	0.0	54.1	0.0	0.0	0.0
3	0.0	53.7	0.0	46.3	0.0	0.0	0.0
4	18.0	78.3	0.0	3.7	0.0	0.0	0.0
5	0.0	21.9	0.0	37.5	0.0	40.7	0.0
6	0.2	33.9	0.0	62.9	0.0	3.1	0.0
7	0.2	0.0	0.0	99.8	0.0	0.0	0.0
8	8.8	0.0	0.0	58.2	30.0	3.1	0.0
9	44.7	0.0	0.0	0.0	48.5	6.8	0.0
10	37.1	0.0	0.0	53.1	0.0	9.8	0.0
11	34.4	0.0	0.0	65.6	0.0	0.0	0.0
12	44.7	0.0	0.0	55.3	0.0	0.0	0.0
13	24.8	0.0	0.0	75.2	0.0	0.0	0.0
14	0.0	0.0	0.0	81.3	0.0	18.7	0.0
15	0.0	0.0	0.0	70.9	0.0	29.1	0.0
16	0.0	0.0	0.0	81.7	0.0	18.3	0.0
17	0.0	0.0	0.0	97.1	0.0	2.9	0.0
18	0.0	0.0	0.0	100.0	0.0	0.0	0.0
19	0.0	0.0	0.0	100.0	0.0	0.0	0.0
20	0.0	0.0	0.0	100.0	0.0	0.0	0.0
21	0.0	0.0	0.0	100.0	0.0	0.0	0.0
22	0.0	0.0	0.0	100.0	0.0	0.0	0.0
23	0.0	0.0	0.0	100.0	0.0	0.0	0.0
24	0.0	0.0	0.0	100.0	0.0	0.0	0.0
25	0.0	0.0	0.0	100.0	0.0	0.0	0.0
26	0.0	0.0	0.0	100.0	0.0	0.0	0.0
27	0.0	0.0	0.0	100.0	0.0	0.0	0.0
28	0.0	0.0	8.7	91.3	0.0	0.0	0.0
29	0.0	0.0	13.7	86.3	0.0	0.0	0.0
30	0.0	0.0	0.0	100.0	0.0	0.0	0.0
31	0.0	0.0	0.0	100.0	0.0	0.0	0.0
32	0.0	0.0	0.0	100.0	0.0	0.0	0.0

Station	% Agriculture	% Dry Wash Woodland	% Developed	% Creosote Scrub	% Dune	% Unvegetated Wash	% Undetermined
33	0.0	0.0	0.0	100.0	0.0	0.0	0.0
34	0.0	0.0	0.0	88.3	0.0	11.7	0.0
35	0.0	0.0	0.0	14.9	85.0	0.1	0.0
36	0.0	0.0	0.0	60.1	39.9	0.0	0.0
37	0.0	0.0	0.0	0.0	100.0	0.0	0.0
38	0.0	0.0	0.0	100.0	0.0	0.0	0.0
39	0.0	0.0	0.0	100.0	0.0	0.0	0.0
40	0.0	0.0	0.0	100.0	0.0	0.0	0.0
41	0.0	0.0	0.0	96.9	0.0	3.1	0.0
42	0.0	0.0	0.0	92.9	0.0	7.1	0.0
43	0.0	0.0	0.0	93.4	0.0	6.6	0.0
44	0.0	0.0	18.5	81.5	0.0	0.0	0.0
45	0.0	0.0	9.9	90.1	0.0	0.0	0.0
46	0.0	0.0	0.0	94.5	0.0	5.5	0.0
47	0.0	0.0	0.0	85.9	0.0	14.1	0.0
48	0.0	0.0	0.0	78.8	0.0	21.2	0.0
49	0.0	0.0	0.0	79.7	0.0	20.3	0.0
50	0.0	0.0	0.0	72.2	11.5	16.3	0.0
51	0.0	0.0	0.0	99.5	0.0	0.5	0.0
52	0.0	0.0	0.0	23.0	77.0	0.0	0.0
53	0.0	0.0	0.0	95.9	4.1	0.0	0.0
54	0.0	87.8	0.0	1.4	0.0	10.7	0.0
55	0.0	100.0	0.0	0.0	0.0	0.0	0.0
56	0.0	100.0	0.0	0.0	0.0	0.0	0.0
57	0.0	100.0	0.0	0.0	0.0	0.0	0.0
58	0.0	100.0	0.0	0.0	0.0	0.0	0.0
59	0.0	67.7	0.0	32.3	0.0	0.0	0.0
60	0.0	98.4	1.6	0.1	0.0	0.0	0.0
61	0.0	60.6	0.0	39.4	0.0	0.0	0.0
62	0.0	0.0	0.0	81.9	0.0	18.1	0.0
63	0.0	0.0	0.0	89.8	0.0	10.2	0.0
64	0.0	0.0	0.0	98.9	0.0	1.1	0.0
65	0.0	0.0	0.0	100.0	0.0	0.0	0.0
66	0.0	0.0	0.0	99.8	0.0	0.2	0.0
67	0.0	0.0	0.0	47.9	52.1	0.0	0.0
68	0.0	0.0	0.0	90.7	9.3	0.0	0.0
69	0.0	0.0	0.0	33.1	66.9	0.0	0.0
70	0.0	0.0	0.0	100.0	0.0	0.0	0.0
71	0.0	0.0	0.0	100.0	0.0	0.0	0.0
72	0.0	3.1	0.0	94.7	0.0	2.1	0.0

Station	% Agriculture	% Dry Wash Woodland	% Developed	% Creosote Scrub	% Dune	% Unvegetated Wash	% Undetermined
73	0.0	11.6	0.0	88.0	0.0	0.4	0.0
74	0.0	7.7	0.0	92.3	0.0	0.0	0.0
75	0.0	23.1	0.0	71.4	0.0	5.5	0.0
76	0.0	54.9	0.0	45.1	0.0	0.0	0.0
77	0.0	24.1	9.7	62.9	0.0	3.4	0.0
78	0.0	0.0	0.0	100.0	0.0	0.0	0.0
79	0.0	0.0	0.0	93.9	0.0	6.1	0.0
80	0.0	0.0	0.0	92.3	0.0	7.7	0.0
81	0.0	0.0	0.0	100.0	0.0	0.0	0.0
82	0.0	0.0	0.0	100.0	0.0	0.0	0.0
83	0.0	0.0	0.0	100.0	0.0	0.0	0.0
84	0.0	0.0	0.0	100.0	0.0	0.0	0.0
85	0.0	0.2	11.7	88.1	0.0	0.0	0.0
86	0.0	0.0	0.0	100.0	0.0	0.0	0.0
87	0.0	0.0	0.0	100.0	0.0	0.0	0.0
88	0.0	0.0	0.0	87.5	12.5	0.0	0.0
89	0.0	0.0	0.0	26.4	73.6	0.0	0.0
90	0.0	0.0	0.0	100.0	0.0	0.0	0.0
91	0.0	0.0	0.0	100.0	0.0	0.0	0.0
92	0.0	0.0	0.0	100.0	0.0	0.0	0.0
93	0.0	0.0	0.0	29.6	70.4	0.0	0.0
94	0.0	0.0	0.0	77.1	0.0	22.9	0.0
95	0.0	0.0	0.0	68.7	0.0	31.3	0.0
96	0.0	0.0	0.0	68.4	0.0	31.6	0.0
97	0.0	1.3	0.0	47.2	0.0	51.5	0.0
98	0.0	94.2	4.4	1.4	0.0	0.0	0.0
99	0.0	95.0	0.0	5.0	0.0	0.0	0.0
100	0.0	79.1	0.0	20.9	0.0	0.0	0.0
101	0.0	0.0	0.0	76.9	0.0	23.1	0.0
102	0.0	0.0	0.0	68.7	0.0	31.3	0.0
103	0.0	0.0	0.0	36.6	48.4	15.0	0.0
104	0.0	0.0	0.0	98.5	0.0	1.5	0.0
105	0.0	0.0	0.0	100.0	0.0	0.0	0.0
106	0.0	0.0	0.0	100.0	0.0	0.0	0.0
107	0.0	0.0	0.0	100.0	0.0	0.0	0.0
108	0.0	0.0	0.0	100.0	0.0	0.0	0.0
109	0.0	0.0	0.0	100.0	0.0	0.0	0.0
110	0.0	0.0	0.0	100.0	0.0	0.0	0.0
111	0.0	0.0	0.3	99.7	0.0	0.0	0.0
112	0.0	0.0	0.0	100.0	0.0	0.0	0.0

Station	% Agriculture	% Dry Wash Woodland	% Developed	% Creosote Scrub	% Dune	% Unvegetated Wash	% Undetermined
113	0.0	0.0	0.0	100.0	0.0	0.0	0.0
114	0.0	0.0	0.0	100.0	0.0	0.0	0.0
115	0.0	0.0	0.0	100.0	0.0	0.0	0.0
116	0.0	0.0	0.0	100.0	0.0	0.0	0.0
117	0.0	0.0	0.0	100.0	0.0	0.0	0.0
118	0.0	0.0	0.0	100.0	0.0	0.0	0.0
119	0.0	0.0	0.0	87.5	0.0	0.0	12.5
120	0.0	0.0	0.0	2.0	0.0	0.0	98.0

Table 11. Vegetation Cover Classes at BUC stations

The following table lists the 6 BUC O.P.s and the percentage of area within an 800-meter radius circle around each that is comprised of the indicated vegetative cover type. Vegetation cover types were generated using GIS software and are based on habitat mapping conducted by AECOM during 2009. A portion of the BUC O.P. # 6 survey area fell outside of the mapped area and is undescribed in the table. This undescribed area is comprised mainly of Sonoran Desert Creosote scrub, but also includes a section of Dry Woodland Wash near the periphery.

BUC O.P. #	% Agricultural	% Dry Wash Woodland	% Dry Lake Bed	% Creosote Scrub	% Dune	% Unvegetated Wash	% Undescribed
1	6.5	14.6	0.0	75.3	0.0	3.6	0.0
2	20.3	0.0	0.0	66.2	8.6	5.0	0.0
3	0.0	0.0	0.0	99.8	0.0	0.2	0.0
4	0.0	0.0	3.6	77.7	17.0	1.6	0.0
5	0.0	0.7	0.0	96.9	0.0	2.3	0.0
6	0.0	0.0	0.0	67.9	0.0	0.0	32.1

Table 12. Lagomorph Relative Frequency Data

The following table lists all 120 SBC survey stations and provides data regarding the frequency of lagomorphs encountered while walking along transects en route to each station during SBC surveys. The following variables are reported for each station: (1) The total transect distance walked by surveying biologists en route to the station during four rounds of surveying (Total Transect Distance [m]), (2) the number of Black-tailed Jackrabbits encountered along transects (# Black-tailed Jackrabbit), (3) the number of Desert Cottontails encountered along transects (# Desert Cottontail), (4) the standardized measure of the number of Black-tailed Jackrabbits encountered per kilometer of transect walked (Black-tailed Jackrabbit per 1km), (5) the standardized measure of the number of Desert Cottontail encountered per kilometer of transect (Desert Cottontail per 1km).. Note that because SBC survey transects were surveyed in forward and reverse order on alternating surveys the same length of transect (e.g., connecting SBC stations # 9 and 10) may be associated with different SBC stations (i.e.., associated with SBC station # 10 when surveyed in forward order, and with SBC station #9 when surveyed in reverse order).

SBC Station	Total Transect Distance (M)	# Black-tailed Jackrabbit	# Desert Cottontail	Black-tailed Jackrabbit per 1km	Desert Cottontail per 1km
1	3650	0	0	0.00	0.00
2	1600	0	0	0.00	0.00
3	1299	0	0	0.00	0.00
4	1121	0	0	0.00	0.00
5	924	0	0	0.00	0.00
6	957	0	0	0.00	0.00
7	2086	0	0	0.00	0.00
8	1933	0	1	0.00	0.52
9	1516	0	0	0.00	0.00
10	1540	0	0	0.00	0.00
11	1499	0	0	0.00	0.00
12	1370	0	0	0.00	0.00
13	1973	0	0	0.00	0.00
14	2241	0	0	0.00	0.00
15	1135	0	0	0.00	0.00
16	1139	0	0	0.00	0.00
17	1265	0	0	0.00	0.00
18	1300	0	0	0.00	0.00
19	1208	0	0	0.00	0.00
20	1010	1	0	0.99	0.00
21	1931	0	0	0.00	0.00
22	1975	0	0	0.00	0.00
23	1119	0	0	0.00	0.00
24	1340	0	0	0.00	0.00
25	1323	0	0	0.00	0.00
26	1255	0	0	0.00	0.00
27	991	0	0	0.00	0.00
28	1634	0	0	0.00	0.00
29	1992	0	0	0.00	0.00
30	1641	0	0	0.00	0.00
31	1172	0	0	0.00	0.00
32	1192	0	0	0.00	0.00
33	1282	0	0	0.00	0.00
34	1330	0	0	0.00	0.00
35	1263	1	0	0.79	0.00

SBC Station	Total Transect Distance (M)	# Black-tailed Jackrabbit	# Desert Cottontail	Black-tailed Jackrabbit per 1km	Desert Cottontail per 1km
36	1200	0	0	0.00	0.00
37	2017	1	0	0.50	0.00
38	1974	0	0	0.00	0.00
39	1423	0	0	0.00	0.00
40	1512	0	0	0.00	0.00
41	1214	0	0	0.00	0.00
42	1144	0	0	0.00	0.00
43	2215	0	0	0.00	0.00
44	1428	0	0	0.00	0.00
45	2127	0	0	0.00	0.00
46	1231	0	0	0.00	0.00
47	1946	0	0	0.00	0.00
48	2331	0	0	0.00	0.00
49	1110	0	0	0.00	0.00
50	1271	0	0	0.00	0.00
51	1279	0	0	0.00	0.00
52	1225	0	0	0.00	0.00
53	1496	0	0	0.00	0.00
54	1822	0	0	0.00	0.00
55	1216	0	0	0.00	0.00
56	1119	0	0	0.00	0.00
57	1204	0	0	0.00	0.00
58	2178	0	0	0.00	0.00
59	896	0	0	0.00	0.00
60	1725	0	0	0.00	0.00
61	1186	0	0	0.00	0.00
62	930	0	0	0.00	0.00
63	1500	0	0	0.00	0.00
64	1145	0	0	0.00	0.00
65	1055	0	0	0.00	0.00
66	1157	2	0	1.73	0.00
67	1121	0	0	0.00	0.00
68	1323	0	0	0.00	0.00
69	2360	0	0	0.00	0.00
70	1689	0	0	0.00	0.00
71	1482	0	0	0.00	0.00
72	1379	1	0	0.73	0.00
73	1513	0	0	0.00	0.00
74	6655	1	0	0.15	0.00
75	2152	1	0	0.46	0.00
76	1172	0	0	0.00	0.00
77	833	0	0	0.00	0.00
78	2713	1	0	0.37	0.00
79	2092	0	0	0.00	0.00
80	1708	0	0	0.00	0.00
81	1879	1	0	0.53	0.00

SBC Station	Total Transect Distance (M)	# Black-tailed Jackrabbit	# Desert Cottontail	Black-tailed Jackrabbit per 1km	Desert Cottontail per 1km
82	1833	0	0	0.00	0.00
83	1027	0	0	0.00	0.00
84	1098	0	0	0.00	0.00
85	802	0	0	0.00	0.00
86	1159	1	0	0.86	0.00
87	1475	0	0	0.00	0.00
88	1180	0	0	0.00	0.00
89	1142	0	0	0.00	0.00
90	1240	0	0	0.00	0.00
91	1135	0	0	0.00	0.00
92	1135	0	0	0.00	0.00
93	5630	0	0	0.00	0.00
94	1909	1	0	0.52	0.00
95	1512	2	0	1.32	0.00
96	1232	0	0	0.00	0.00
97	2256	0	0	0.00	0.00
98	1823	0	0	0.00	0.00
99	1246	1	0	0.80	0.00
100	1328	0	0	0.00	0.00
101	2683	0	0	0.00	0.00
102	1984	0	0	0.00	0.00
103	2605	0	0	0.00	0.00
104	1182	0	0	0.00	0.00
105	1143	0	0	0.00	0.00
106	1226	0	0	0.00	0.00
107	1291	0	0	0.00	0.00
108	3553	0	0	0.00	0.00
109	1031	0	0	0.00	0.00
110	1138	0	0	0.00	0.00
111	1400	0	0	0.00	0.00
112	7660	1	0	0.13	0.00
113	1269	1	0	0.79	0.00
114	1050	0	0	0.00	0.00
115	1182	0	0	0.00	0.00
116	1374	0	0	0.00	0.00
117	1280	0	0	0.00	0.00
118	1136	0	0	0.00	0.00
119	1093	0	0	0.00	0.00
120	3550	0	0	0.00	0.00

APPENDIX C. RESUMES

Bloom Biological, Inc.
Research | Consulting | Conservation

Peter H. Bloom, Ph.D. | President

Qualifications

Peter Bloom has been a professional environmental consultant for more than 35 years, principally in California. He specializes in the environmental sciences, is an internationally recognized expert in raptor biology and conservation and is considered one of the best all-around field biologists in California with his extensive knowledge and experience with all terrestrial vertebrate groups (amphibians, reptiles, birds, and mammals) and the vascular plants. Corporate clients for whom he has prepared or contributed to the production of numerous biological assessments and environmental impact reports include The Irvine Company, Rancho Mission Viejo, Tejon Ranch, Newhall Ranch, Ahmanson Ranch, Metropolitan Water District, and Los Angeles Department of Water and Power. He has also worked extensively with the Department of Defense, U.S. Fish and Wildlife Service, National Park Service, Bureau of Land Management, U.S. Forest Service, California Department of Fish and Game, and various non-profit conservation groups providing valuable research and advice, primarily on raptor ecology and conservation. He has conducted avian and herpetological research in the western United States, Alaska, Peru, Ecuador, and India and has been responsible for a wide variety of biological, ecological, and conservation studies ranging from local biological assessments to regional conservation planning. Dr. Bloom has published more than 30 peer-reviewed scientific papers and technical reports and taught California natural history at a local junior college for more than 12 years.

Professional Experience

As founder and President of Bloom Biological, Inc., Dr. Bloom has prepared numerous biological assessments and worked on an array of avian research projects in the western United States, Alaska, Peru, Ecuador, and India, spending over 600 hours conducting helicopter and fixed-wing nest survey work and aerial radio-tracking of eagles, California condors, hawks, and herons. He has also been responsible for conducting or supervising:

- fiber-optics and electrical powerline installation surveys and construction monitoring;
- surveys of nesting and wintering birds of prey for the California Department of Fish and Game (CDFG), BLM, U.S. Forest Service, Department of Defense, and numerous private land owners;
- transponder and radio-tagging of adult California red-legged frogs in Ventura County;
- focused surveys for California gnatcatcher, southwestern willow flycatcher, least Bell's vireo, yellow-billed cuckoo, Swainson's hawks, golden eagles, arroyo toad, California red-legged frog, desert tortoise, Pacific pond turtle (including trapping and surveying habitat), coast horned lizard, flat-tailed horned lizard, Belding's orange-throated whiptail, coastal whiptail, southern rubber boa, coastal patch-nosed snake, California glossy snake, two-striped garter snake (including trapping and surveying habitat), red-diamond rattlesnake, southern flying squirrel, and Pacific pocket mouse;
- general herpetological, small mammal, breeding and winter bird surveys in southern California;
- translocation of several hundred arroyo toads at Camp Pendleton Marine Corps Base;
- sensitive herpetological, mammal, and raptor surveys for the Transportation Corridor Agency in Orange County; and
- a raptor status and management plan for Naval Weapons Station, Seal Beach and Fallbrook Detachment.

As a research biologist at the Western Foundation of Vertebrate Zoology, served on the Science Advisory Board of the South Orange County Natural Communities Conservation Program. During his tenure there he:

- provided herpetological input into the Orange County environmental GIS and Cleveland National Forest environmental inventory.
- managed a long-term (30 yr.) raptor ecology study in California;
- managed a successful Great Blue Heron mitigation project designed to increase numbers of nesting herons through placement of artificial nest platforms;
- supervised and performed predator management activities for USFWS related to protection of California least terns, snowy plovers, and light-footed clapper rails in southwestern California from avian and other

vertebrate predators (locations included Vandenberg Air Force Base, Naval Weapons Station Seal Beach, Batiquitos Lagoon, Port of Long Beach, Port of San Diego, and Tijuana Slough National Wildlife Refuge);
- supervised a two year CalTrans radio-telemetry study of nesting peregrine falcons and their relationship to California least terns in southwestern California; and
- organized and finished seven years of a MAPS passerine monitoring station.
- Together with sub-permittees, banded ~ 45,000 birds, mostly nestlings (1970 – 2013).

While serving as a research biologist and advisor in India, responsibilities included educating local biologists in the various techniques needed to capture birds, and conducting radio-telemetry research.

Served as thesis advisor to seven students at CSU Long Beach, one student at CSU Humboldt, and one student at CSU Fullerton.

As research biologist for the National Audubon Society, was responsible for writing the grant proposal and ultimately the successful award of two grants totaling $300,000 for six years of fulltime research on the ecology of southern California raptor populations. Responsibilities included project management, personnel selection, supervision of 12 volunteers, proposal and budget preparation, method design, data analysis, report writing, and publication of results. Directed the effort to capture all wild free-flying California condors for transmitter placement or captive breeding. Radio-tracked condors and conducted contaminant studies involving condors and 180 golden eagles.

As a research biologist at the University of California, Santa Cruz, was principal investigator on a three year study designed to determine the status of northern goshawk populations in California for CDFG.

Trapped and placed transmitters on great gray owls for the National Park Service , prairie falcons for CDFG, and peregrine falcons in Peru for the Bodega Bay Institute of Pollution Ecology.

As a wildlife biologist for BLM, was principal investigator of a study designed to determine the status of the Swainson's hawk in California. Surveyed all semi-arid and desert regions, reviewed literature and museum records, assessed reproduction, banded adults and young, and prepared the final report. His efforts contributed to the state-listing of Swainson's hawk as threatened.

Surveyed and reported on the ecology and distribution of raptors inhabiting the 200-square-mile Camp Pendleton Marine Corps Base.

While serving as a biological technician for BLM, conducted reptile, amphibian, small mammal, and avian surveys of 3.25 million acres of public land as part of a grazing EIS.

Education

Ph.D., Natural Resources, College of Natural Resources, University of Idaho, Moscow
M.S., Biology, California State University, Long Beach
B.S., Zoology, California State University, Long Beach

Awards

Graduation with Honors – Best Thesis Award School of Natural Sciences 1979
The Wildlife Society Western Section: Professional of the Year, 2005
Association of Field Ornithologists: Bergstrom Award, 1981
The Nature Conservancy: $27,000 for satellite transmitters, 2004 and 2006

Permits & Certifications

Federal endangered species recovery permit (TE-787376) for red-legged frog (including placement of transmitters and transponders), arroyo toad, California gnatcatcher (including banding), least Bell's vireo (including banding), southwestern willow flycatcher (including banding), California least tern, snowy plover, peregrine falcon (banding), bald eagle (banding), and Swainson's hawk (banding).

California scientific collecting permit and memorandum of understanding for all raptors, including state-

threatened Swainson's hawk, reptiles, amphibians, small mammals, and many additional species of birds, including state-threatened western yellow-billed cuckoo, California least tern, snowy plover, peregrine falcon, and bald eagle

Federal Master Banding Permit No. 20431

Federal Bird Marking and Salvage Permit

Predator Management Permit

Migratory Bird Relocation Permit (burrowing owl and other species)

Brown-headed cowbird trapping authorization

Desert Tortoise Council-approved for conducting desert tortoise monitoring surveys

Selected Publications

Home range and habitat use of Cooper's Hawks in urban and natural areas. C.A. Lepczyk and P.S. Warren (eds). Studies in Avian Biology No. 45. www.ucpress.edu/go/sab. 2012. (with Chiang, S.N., P.H. Bloom, A.M.Bartuszevige and S. E. Thomas)

Impact of the lead ammunition ban on reducing lead exposure in golden eagles and turkey vultures in California. PloS One. 18 pgs. 2011. (with Kelly, T.R., S. Torres, Y. Hernandez, R. Poppenga, W.M. Boyce, and C.K. Johnson)

Vagrant western Red-shouldered Hawks: Origins, natal dispersal patterns and survival. The Condor. 113:538-546. 2011. (with J.M. Scott, J.M. Papp, J.W. Kidd, S. Thomas)

Capture techniques. Pgs. 193 – 219. In Bird and Bildstein (eds). Raptor research and management techniques. Hancock House, Blaine, WA. 2007. (with W.S. Clark and J.W. Kidd)

Status of Burrowing Owls in southwestern California. In Proceedings of the California burrowing owl symposium, November 2003. Bird populations monographs No. 1. Institute for Bird Populations and Albion Environmental, Inc. 2007. (with Kidd, J.W., P.H. Bloom, C.W. Barrows and C.T. Collins)

Turkey vulture marking history: the switch from leg bands to patagial tags. *North American Bird Bander* 30:59-64. 2005. (with C. S. Houston)

Basic II and basic III plumages of rough-legged hawks. *Journal of Field Ornithology* 76:83-89. 2005. (with William Clark)

Molt and sequence of plumages of golden eagles, and a technique for in-hand ageing. *North American Bird Bander* 26:97-116. 2001. (with William Clark)

The status of Harlan's hawk in southern California. *Western Birds* 31:200-202. 2000. (with Charles Collins)

Post-migration weight gain of Swainson's hawks in Argentina. *Wilson Bulletin* 111:428-432. 1999. (with M. I. Goldstein, J. H. Sarasola, and T. E. Lacher)

Characteristics of red-tailed hawk nest sites in oak woodlands of central California. Proceedings of a Symposium on Oak Woodlands: Ecology, Management, and Urban Interface Issues. Pgs. 365-372. 1998. (with W. D. Tietje, and J. K. Vreeland)

The urban buteo: red-shouldered hawks in southern California. Pgs 31-39 in: Raptors in Human Landscapes, Adaptations to Built and Cultivated Environments. 1996. D. M. Bird, D. E. Varland,, and J. J. Negro, eds. Academic Press. (with M. D. McCrary)

Reproductive performance, age structure, and natal dispersal of Swainson's hawks in the Butte Valley, California.

Journal of Raptor Research 29:187-192. 1995. 1995. (with B. Woodbridge and K. K. Finley)

The biology and current status of the long-eared owl in coastal southern California. Bulletin of the Southern California Academy of Sciences 93:1-12. 1994.

Red-shouldered hawk home range and habitat use in southern California. Journal of Wildlife Management 57:258-265. 1993. (with M. D. McCrary and M. J. Gibson)

The dho-gaza with great horned owl lure: an analysis of its effectiveness in capturing raptors. Journal of Raptor Research 26:167-178. 1992. (with J. L. Henckel, E. H. Henckel, J. K. Schmutz, B. Woodbridge, J. R. Bryan, R. L. Anderson, P. J. Detrich, T. L. Maechtle, J. O. McKinley, M. D. McCrary, K. Titus, and P. F. Schempf [Bloom senior author])

Lead hazards within the range of the California condor. The Condor 92:931-937. 1990. (with O. H. Pattee, J. M. Scott, and M. R. Smith)

Investigations of the decline of Swainson's hawk populations in California. Journal of Raptor Research 23:63-71. 1990. (with R. W. Risebrough, R. W. Schlorff, and E. E. Littrell)

Importance of riparian systems to nesting Swainson's hawks in the Central Valley of California. Pgs. 612-618 in Warner, R.E. and K.M. Hendrix eds., California Riparian Systems, Ecology, Conservation, and Productive Management. University of California Press. 1984. (with R. D. Schlorff)

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Michael Kuehn, Ph.D. | Statistical Analyst

Qualifications

Dr. Kuehn is an avian ecologist with experience conducting field research throughout the Americas from Ecuador to Alaska. He also has a solid working knowledge of the other terrestrial vertebrate groups (amphibians, reptiles, and mammals), and has taught courses about their ecology and identification at UC-Santa Barbara. He is familiar with the fauna and flora of coastal California and the Mojave/Sonoran Desert regions. He has studied nesting birds for 15 years, principally in California, Nevada, Arizona, Montana, Idaho and Alaska, but also in Ecuador. Dr. Kuehn has been responsible for a wide variety of biological, ecological, and conservation studies ranging from local biological assessments to studies aimed at understanding specific stressors on regional avian communities. He has designed avian field studies and supervised field crews during the implementation of these studies. Dr. Kuehn served on a Technical Advisory Committee for a Walton Family Foundation funded initiative to restore habitat for Southwestern Willow Flycatchers in the Colorado Basin in the wake of Tamarisk biocontrol beetle introduction during 2011 and 2012.

Professional Experience

As a biologist at Bloom Biological, Dr. Kuehn has worked for two years as an avian specialist, conducting nest searching and monitoring for the Sunrise Powerlink Project in San Diego and Imperial counties in California. He has also assisted in creating burrows and conducting surveys for Burrowing Owls. Recently, he has conducted complex statistical analyses to review ecological issues for a number of BBI's projects, Dr. Kuehn also has the following experience:

As a research assistant at the Western Foundation of Vertebrate Zoology, conducted surveys for Loggerhead Shrikes on Santa Cruz Island and for all bird species along the Santa Clara River (Ventura County).

As a research associate at the University of California, Santa Barbara, designed and directed a two-year study investigating the effects of a tamarisk biocontrol agent on avian communities using riparian habitat in southern Nevada.

Conducted independent research on reproductive strategies of birds breeding at high latitudes in central Alaska.

As a graduate student at UC Santa Barbara, conducted seven years of field research in Alaska, Idaho and Montana to investigate the behavioral defenses of hosts against Brown-headed Cowbird parasitism.

Participated for four years in a long-term ecological investigation of landscape effects on nesting success of riparian birds in Western Montana

Participated in a study of nesting birds in the cloud-forests of central and southern Ecuador.

Education

Ph.D., University of California, Department of Ecology, Evolution and Marine Biology, Santa Barbara
B.S., Fisheries and Wildlife Management, Lake Superior State University, Sault Ste. Marie, Michigan

Awards

Worster Award for Graduate/Undergraduate Collaborative Research, Department Ecology, Evolution and Marine Biology, University of California, Santa Barbara ($6000). 2007
Frank M. Chapman Memorial Grant, American Museum of Natural History ($2500). 2007
Student Research Award, Animal Behavior Society ($1000). 2007
Exploration Fund Award, Explorer's Club ($1200). 2007
Paul A. Stewart Research Award, Wilson Ornithological Society ($500). 2007
Ralph Schreiber Ornithology Research Award, Los Angeles Audubon Society ($2500). 2006
Student Research Award, American Ornithologist's Union ($1800). 2003

Permits &

USFWS Sci. Collector's Permit (MB085567-0)

Certifications

USGS Bird Banding Subpermitee (22905-F

Selected Publications

Peer, B. D., M. J. Kuehn, S. I. Rothstein and R. C. Fleischer. 2011. Persistence of host defence behavior in the absence of avian brood parasitism. Biology Letters. 7(5): 670-673.

Peer, B. D., C. E. McIntosh, M. J. Kuehn, S. I. Rothstein and R.C. Fleischer. 2011. Complex biogeographic history of lanius spp. shrikes and its implications for the evolution of defenses against avian brood parasitism. Condor. 113(2): 385-394.

Bateman, H.L., T.L. Dudley, D.W. Bean, S.M. Ostoja, K.R. Hultine, and M.J.Kuehn. 2010. A river system to watch: documenting the effects of saltcedar (Tamarix spp.) biocontrol in the Virgin River Valley. Ecological Restoration. 28:405-410.

Rivers, J. W., and M. J. Kuehn. Predation of eared grebe by great blue heron. 2007. Wilson Journal of Ornithology. 118(1): 112-113.

Peer, B. D., S. I. Rothstein, M. J. Kuehn and R. C. Fleischer. 2005. Host defenses against cowbird Molothrus spp. parasitism: implications for cowbird management. Pp. 84-97 in C. P. Ortega, J. F. Chace and B. D. Peer eds., Management of cowbirds and their hosts: balancing science, ethics and mandates. Ornithological Monographs. No. 57.

Tewksbury, J. J., T. E. Martin, S. J. Hejl, M. J. Kuehn and W. J. Jenkins. 2002. Parental care of a cowbird host: caught between the costs of egg-removal and nest predation. Proc. R. Soc. Lond. B. 269: 423-429.

Dobbs, R.C., P.R. Martin, and M. J. Kuehn. 2001. On the nest, eggs, nestlings, and parental care in the Scaled Antpitta (Grallaria guatimalensis). Ornithologia Neotropical 2:225-233

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Marcus C. England | Vice President

Qualifications

Mr. England is a biologist with expertise in avian biology, population ecology, project permitting, technical writing, geographic information systems, and database management and project experience in the residential development, wind and solar industries. He has a U.S. Fish and Wildlife Service recovery permit to conduct surveys for California Gnatcatcher (*Polioptila californica*) and has extensive experience conducting protocol surveys for Least Bell's Vireo (*Vireo bellii pusillus*), Burrowing Owl (*Athene cunicularia*), and Desert Tortoise (*Gopherus agassizii*). Mr. England is also experienced in conducting tree surveys and designing and conducting complex vegetation mapping efforts. Mr. England has a thorough knowledge of the California Environmental Quality Act (CEQA), National Environmental Policy Act (NEPA) and Federal Endangered Species Act (FESA) and how these state and federal policies, as well as local land use and environmental policies, apply to the project permitting process. Mr. England has written CEQA documents for some of the largest development projects in the State of California, including projects in Kern, Ventura, Los Angeles, Orange, San Bernardino, Riverside, and San Diego counties. He has considerable expertise with project permitting under the Western Riverside County Multiple Species Habitat Conservation Plan. He has also written due diligence documents for large projects in northern California, Arizona, New Mexico and Nevada.

Professional Experience

Currently acting as project-wide Nesting Bird Lead Monitor on Southern California Edison's Tehachapi Renewable Transmission Project. Responsible for training programs, communication, and policy development regarding surveys and monitoring for nesting birds.

As Director of Biological Services at Natural Resource Consultants, implemented the company's GIS and database program, managed personnel and projects and was the primary author on biological technical reports and permitting documents for all major contracts.

Conducted nesting bird surveys throughout southern California since 2003, and previously, in Ohio and Belize as lead ornithologist for the Landbird Monitoring Programme at Lamanai, Belize. Recent projects include:

- Pacific Heights – residential development project in Hacienda Heights, Los Angeles County.
- Montebello Hills Oilfield – Los Angeles County.
- Skyline Ranch – residential development project outside Santa Clarita, Los Angeles County.
- Edison transmission towers – throughout southern California for MetroPCS as part of the approval process for placement of cellular arrays on towers.

Conducted burrowing owl transect surveys yearly throughout southern California, primarily on residential development projects, since 2003. Have also written mitigation/relocation plans for Burrowing Owls since 2005. Most surveys conducted have followed Burrowing Owl Consortium protocol, however, others have followed a separate protocol established for unincorporated areas of Riverside County under the Western Riverside County Multiple Species Habitat Conservation Plan. Recent projects include:

- Multiple SunCal residential projects in western Victorville and Chino – successful implementation of Burrowing Owl relocation plans.
- Edison transmission towers – conducted Burrowing Owl surveys throughout southern California for MetroPCS as part of the approval process for placement of cellular arrays on towers.
- Multiple Pardee Homes residential projects in western Riverside County – conducted Burrowing Owl surveys with teams on several projects over 1,000 acres.

Permitted to conduct surveys for the California Gnatcatcher under permit number TE-082233-0. Have also written several Section 7 Consultation/Biological Assessments for impacts to the California Gnatcatcher. Recent projects

include:

- Conducted surveys in the vicinity of Rio Hondo College for Southern California Edison.
- Conducted surveys and monitored for impacts to gnatcatchers for work on Camp Pendleton.
- Conducted surveys in San Diego County for PCR Services.
- Montebello Hills Oilfield as project leader for multiple years under a FWS agreement to use a modified protocol.
- Pacific Heights residential development.
- Pardee Homes' Skyline Ranch and other Santa Clarita area projects.

Conducted protocol surveys for least Bell's vireo. Recent projects for include:

- Pacific Heights residential development.
- Several residential development projects in western Riverside County for Gateway Communities.
- Several residential development projects for Pardee Homes in Riverside and Orange Counties.

Conducted protocol surveys for desert tortoise throughout the Mojave Desert, including California and Nevada since 2005. Larger projects include:

- Waterman Junction (SunCal Companies) on 8,000-plus acres south of Barstow.
- Coyote Springs (Pardee Homes), a 35,000 acre project in Lincoln County.
- Edison transmission towers – conducted Desert Tortoise surveys for MetroPCS as part of the approval process for placement of cellular arrays on towers.
- Also co-authored a Desert Tortoise Management and Relocation Plan for the Barstow area as part of a non-completed Section 10 Consultation for NRC.

Conducted biological monitoring on construction projects throughout southern California, including projects for Southern California Edison. Recent experience monitoring includes the following:

- Conducted biological monitoring during much of 2010 for SCE's Tehachapi Renewable Transmission Project.
- Conducted biological monitoring during much of 2009 for fiber optic cable installation for SCE's El Casco project as an employee of Natural Resource Consultants (NRC). Also managed NRC's monitoring operations and developed the monitoring database used on that project.
- Monitored during implementation of a habitat restoration program for California Gnatcatcher at the Montebello Hills Oilfield while employed by NRC. I also wrote much of the restoration program, as well as the Section 7 Consultation and CEQA documents.

Conducted biological fieldwork and acted as teaching assistant for avian ecology and tropical ecology courses during the summers of 1995 and 1996 at La Suerta Biological Station, Costa Rica.

Head ornithologist from 1998-2000 at Lamanai Field Research Center in Orange Walk, Belize. Research included line transects, point counts and constant effort mist netting. This work fundamentally changed our understanding of bird distributions in north-central Belize. Conducted additional fieldwork during this period at Las Cuevas Biological Station in the Chiquibul National Forest. Also assisted on a large-scale US Environmental Protection Agency funded study on toxic contaminants in endangered Morelet's crocodiles.

Has studied birds in Guatemala, Trinidad & Tobago, Brazil, Dominican Republic and Puerto Rico.

Served two terms on the Board of Directors of the Columbus (OH) Audubon Society.

Education B.Sc.; Evolution, Ecology and Organismal Biology; The Ohio State University; 1998

Permits & Certifications Federal endangered species recovery permit (TE-082233) for California gnatcatcher.
Approved as a Desert Tortoise surveyor by the California Department of Fish and Game.

Selected Publications

England, M. C. 2000. A review of bird responses to El Niño-Southern Oscillation conditions in the Neotropics. Cotinga 13: 83-88.

England, M. C. 2000. The Landbird Monitoring Programme at Lamanai, Belize: A preliminary assessment. Cotinga 13: 32-43.

England, M. C. 2000. First summer record of Ruby-throated Hummingbird *Archilochus colubris* in Belize. Cotinga 13: 65.

England, M. C. 1999. An apparent influx of migratory Chuck-will's-widow *Caprimulgus carolinensis* along the New River Lagoon, Orange Walk District, Belize. Cotinga 11: 97.

England, M. C., B. Cruz, and C. Godoy. 2001. Notes on the status of Yucatan Nightjar *Caprimulgus badius* along the New River, Orange Walk District, Belize. Cotinga 15: 61-62.

England, M. C., T. R. Rainwater, and S. G. Platt. 2001. Possible consumption of a lizard by a Black-headed Trogon *Trogon melanocephalus*. Cotinga 15: 62.

Rainwater, T. R., M. C. England, S. G. Platt, S. T. McMurry. 2001. Predation of a Yellow-winged Tanager *Thraupis abbas* by an arboreal snake in Belize. Cotinga 15: 8-9.

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Chris Niemela | Biologist

Qualifications

Chris Niemela has more than 16 years of classroom and field experience in general ecology, with an emphasis in avian ecology and 13 years of experience in environmental consulting (surveys, biological assessment, monitoring). Ms. Niemala has particular expertise with birds of prey, having conducted her master's degree research on White-tailed Kite habitat use in southern California and banded hundreds of raptors of ten species, including both adult and nestling Golden Eagles in southern California. Ms. Niemela has also been monitoring VHF and PTT equipped California Condors, trapping Golden Eagles, and locating Golden Eagle and other raptor nests within the Tehachapi Mountains for the last five years. Ms. Niemela also has extensive experience in avian censusing, nest searching, and monitoring in various habitats as well as trapping and handling passerines, reptiles, amphibians, and small mammals.

Professional Experience

From 1998 to present, worked on a variety of projects for the Conservation Biology Institute, Imperial Irrigation District, MCB Camp Pendleton, Metropolitan Water District, National Park Service, Naval Weapons Station Seal Beach Detachment Fallbrook, Newhall Land, Rancho Mission Viejo, San Diego Gas & Electric, Santa Monica Mountains Conservancy, Southern California Edison, Sunshine Canyon Landfill, Tejon Ranch, Transportation Corridor Agency. Activities have included:

- 6 years of radio telemetry on California Condors in southern CA (2007-2013).
- Extensive Golden Eagle nest surveys (ground and helicopter), monitoring, and trapping.
- Extensive sensitive species surveying and monitoring (including California gnatcatcher, least Bell's vireo, arroyo toad, quino checkerspot butterfly, and Swainson's hawk).
- Raptor and passerine migration counts and trapping for proposed wind farm sites.
- Biological assessments and monitoring; wildlife inventories; focused breeding bird surveys.
- Extensive surveying and trapping of songbirds, amphibians, reptiles, and small mammals.
- Study, capture, band and monitor all species of southern CA diurnal and nocturnal raptors.
- Energy related bird surveys and monitoring
- Data entry/analysis, GIS, technical writing, and report preparation.

As a Conservation Scientist at the Tejon Ranch Conservancy, assisted with development and implementation of science and stewardship activities

As Lead Bird Bander for the Institute for Bird Populations MAPS station, San Juan Capistrano, coordinated volunteers and field efforts; maintained datasets; mist-netted, banded, and processed passerines for nation-wide population monitoring effort.

As a Field Investigator for USGS-BRD, Mid-continent Ecological Science Center conducted stable isotope analysis of White-tailed Kite populations. Work included trapping white-tailed kites and collecting blood and feather samples for laboratory analysis.

As a Raptor Biologist for Predator Research and Management, Institute for Wildlife Studies, San Clemente Island Loggerhead Shrike Recovery Program conducted non-lethal removal (trapping and holding) of raptors and foxes from shrike territories; island-wide raptor surveys, nest searching, and monitoring; and care, feeding, and handling of captive raptors and foxes.

As an Avian Censuser for Great Basin Bird Observatory, Reno, NV collected data on breeding birds for the Nevada Breeding Bird Atlas.

As a Wildlife Biologist/Technical Writer for Natural Resource Consultants, Laguna Beach conducted biological

assessments of various habitat types throughout southern California. Work included endangered Quino checkerspot butterfly surveys: presence/absence surveys, host plant surveys, habitat suitability assessment, vegetation mapping, writing technical reports, organizing and entering data, producing graphics.

Education

M.S., Natural Resources/Wildlife, 2007, Humboldt State University, Arcata, CA
B.S., Wildlife, 1997, Humboldt State University, Arcata, CA

Permits & Certifications

Federal Fish and Wildlife Permit 10(a)(1)(A) for:

- Arroyo southwestern toad (*Bufo microscaphus californicas*) (#TE-787376-8).
- California gnatcatcher (*Polioptila californica californica*) (#TE-787376-8).
- Least Bell's Vireo (*Vireo bellii pusillus*) (#TE-787376-8).
- Quino checkerspot butterfly (*Euphydryas editha quino*), (#TE-049470-0)

Federal Bird Marking and Salvage Permit, (subpermittee #20431-AZ), since 1998. U.S. Department of Interior, National Bird Banding Laboratory. Authorized to trap and band most species.
State of California Scientific Collecting Permit and Memorandum of Understanding for all birds, reptiles, amphibians, and small mammals (#801099-01).

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Elias Elias | Biologist

Qualifications

Mr. Elias has 20 years of experience working professionally with wildlife in California. His skills include various sampling protocols for birds, including point counts, transects, and point count sampling along transects, for songbirds, raptors, and other avian species, breeding bird nest surveys, and bird netting and banding, He is also proficient at conducting general wildlife surveys, vegetation quantification, marine mammal surveys, time-constrained amphibian search and capture, and species-specific surveys for species such as burrowing owl, spotted owl, willow flycatcher, marbled murrelet, desert tortoise, bowhead whale, gray whale, and white shark.

Professional Experience

Has conducted pre-construction avian risk surveys for proposed wind turbine and solar energy projects in San Bernardino, Riverside, Kern, and San Diego counties. Avian sampling techniques employed included bird-use and small bird point counts, linear transects, point counts along a transect line, and area bird surveys, all in accordance with published California Energy Commission and California Department of Fish and Game (CDFG) guidelines for wind and solar energy projects in California.

For SDG&E Sunrise Powerlink Transmission Project, located and monitored nests in planned construction areas in a variety of terrains from desert floor to montane boulder zones and coastal chaparral and sage scrub. Established appropriate-sized construction zone buffer areas around nests. Recorded pertinent nesting parameters in PenTab unit for later posting to project database.

To determine productivity and survivorship, surveyed for riparian birds in California, Maryland, and Virginia using point-count sampling techniques. As part of the study, delineated territories and located nests of landbirds. In the Hall Research Natural Area in the Sierra Nevada, operated netting stations to capture, band, age and sex birds residing there.

Conducted point count surveys of riparian birds along the Sacramento River for the U.S. Forest Service and Bureau of Land Management.

Operated a netting station at Point Reyes Bird Observatory in Marin County, California to capture landbirds for a demographic study of birds of the coastal scrub and nearby riparian habitats.

Used recorded playback techniques to attract and document territorial male yellow-billed cuckoos in a newly colonized locale along the Eel River in Humboldt County, California. Documented the only cuckoos in the study area in both years of the study.

As a component of the USDA Forest Service Eddy Gulch Late-Successional Reserve Fuels and Habitat Protection Project, conducted recorded playback surveys for northern spotted owls and northern goshawks in Old Growth forest stands.

Conducted point counts for forest birds and conducted recorded playback surveys for northern spotted owls for the USDA Forest Service and California State Parks Canoe Fire Study. The study assessed the severity of the Canoe Fire on the landscape in Humboldt Redwood State Park.

Led a crew in conducting comprehensive environmental surveys on tribal holdings in the Yurok Indian. Reservation in northwestern California. Surveyed and oversaw data collection for all listed sensitive species known from the property. Worked with marbled murrelets, northern spotted owls, fishers and martins, and performed time-constrained leaf-litter and stream surveys for reptiles and amphibians.

Led USDA Forest Service crews in conducting sea-based surveys designed to estimate the population size of the federally threatened marbled murrelet in Washington, Oregon, and California as required under the federal Northwest Forest Plan. Also completed a project to define the range and distribution of the marbled murrelet in the Six Rivers National Forest in northwestern California, and conducted general bird surveys associated with the project.

Conducted comprehensive surveys for burrowing owls and their nesting burrows along the network of canals and drainage ditches in the southern Imperial Valley Imperial County California.

Surveyed riparian areas and nearby uplands using point counts to quantify habitat usage between the two habitats. Also surveyed riparian birds using point count techniques and mist-netting along rivers and streams in northern California as part of an ongoing data collection scheme called the Klamath Demographic Network. Surveyed for riparian birds along the Trinity River in Trinity County California as part of a Trinity River Restoration Project. Several census techniques were used, including nest searches, point counts, area searches, mist-netting, and boat surveys.

Conducted aerial surveys for bowhead whales and other marine mammals for whale-seismic vessel interactions study in the Beaufort Sea for Shell Oil and Exploration. Mitigated impacts to whales as required under an Incidental Harassment Authorization issued by the National Marine Fisheries Service.

Assisted in a darting project to examine the genetics of locally summering gray whales in Oregon. In addition to the genetic analyses, samples were used to examine the toxic load of the whales studied. Individual whales were identified by comparing photographs taken of each whale with images of known individuals in a catalogue.

Completed pre-construction desert tortoise surveys for proposed solar power facilities near Ridgecrest in Kern County and Blythe in eastern Riverside County.

Monitored Southern California Edison crews trimming trees in riparian habitat along the Santa Ana River in the vicinity of Riverside, California. His primary role was to search for sensitive species in advance of the crews and to verify that the crew met their contractual obligations to avoid sensitive resources.

Education

College of the Redwoods, Eureka, California

Workshops & Certifications

Pacific Seabird Group Annual Conference, Pacific Grove, California
Cold Water Survival Training
Helicopter Underwater Escape Training
Marbled Murrelet Surveyors Training Annual Certification

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Karly J. Moore | Field Biologist

Qualifications

Karly Moore is an acknowledged expert in the identification of North American birds by sight and sound and has nearly 25 years of experience mist-netting and banding birds, conducting nesting bird surveys, point-count sampling for all birds, including raptors, and conducting endangered species surveys. She has a U.S. Fish and Wildlife Service recovery permit for conducting California gnatcatcher surveys, monitoring their nests, and removing brown-headed cowbird eggs and chicks, and is a sub-permittee for banding and monitoring nests of least Bell's vireos, coastal cactus wrens, other passerines, and raptors. She has a California scientific collectors permit and is trained and certified to conduct marbled murrelet surveys.

Professional Experience

Conducted avian surveys using point count sampling methods, including avian wind-turbine collision risk assessments of raptors and migrating passerines, and occupation rates of restoration sites by breeding birds. Conducted migrant and winter raptor counts in California and Idaho using HawkWatch International protocol. Recorded species, distance from observation point, flight altitude and direction, thermal conditions, and migratory or resident status.

Has mist-netted and banded more than 10,000 birds, including hawks, owls, waterfowl, shorebirds, and passerines, and has demonstrated bird-banding techniques to local community and youth groups. Has used bird capture and banding techniques to age and sex birds and determine their breeding status, to study their molt strategies, and to estimate population size and species composition of local bird communities. Has live-trapped birds of prey using balcha-tri, dho-ghaza, noosed-carpet, harnessed-pigeon, bow-trap and mist-netting techniques.

Has conducted numerous USFWS presence/absence surveys and habitat assessments for and monitored nests of the federally threatened California gnatcatcher. Has conducted USFWS presence/absence surveys, nest searches, and nest monitoring for the federally endangered least Bell's vireo in California and black-capped vireo in Texas and removed eggs of the brood parasitic brown-headed cowbird.

Captured and translocated two family pairs and one solitary adult coastal cactus wren, a California species of special concern, to the Upper Back Bay, Newport Beach, California as part of a pre-construction translocation project. Duties involved finding and monitoring nests prior to capture, assisting with the translocation and subsequent re-sightings of color banded individuals, and taking field notes on the status of the translocated wrens. Later, assisted with a coastal cactus wren natal dispersal telemetry project in which wren fledglings were tracked using tiny radio transmitters placed on the birds.

Captured and color-banded federally endangered golden-cheeked warblers on Fort Hood in Texas, determined their breeding status, and mapped the breeding territories of both banded and unbanded birds.

Banded and monitored color-banded breeding and post-breeding San Clemente Island loggerhead shrikes for Point Reyes Bird Observatory; conducted timed behavioral observations on adult and juvenile shrikes and determined their breeding phenology from pairing through fledging. Pulled wild shrike eggs and transported them in a portable incubator to San Diego Zoological Society captive breeding facilities on the island. Conducted behavioral observations from behind a blind or from watching video monitoring equipment on the wild and captive shrikes. Used Tomahawk live traps to control rats and foxes around shrike cages.

Used telemetry to triangulate amongst three observers the locations of California condors on Tejon Ranch and within the proposed Tejon Mountain Village. Recorded all signals detected as part of a USFWS daily census of condor survival and movements.

Conducted burrowing owl surveys according to CDFG survey protocol in Riverside and San Bernardino counties, California. Assisted with release, tracking, and monitoring of captive owls. On construction projects where active owl burrows were to be collapsed, assisted with eviction of the owls and their relocation to artificially constructed burrows elsewhere.

Conducted monthly waterbird and shorebird counts along the shoreline of the San Diego Bay on the incoming and outgoing tides. Participated in nest monitoring studies of federally endangered California least tern and California threatened western snowy plover colonies. Tasks included color-banding and tracking chicks.

Served as a biological resource monitor on a variety of construction projects throughout California and in Texas. Monitored the behavior of territorial and nesting birds, including threatened and endangered species such as California gnatcatchers and least Bell's vireos, in the vicinity of construction, and took notes on construction site activities and equipment, nest location, nest stage, disturbance levels, and outcome of nesting attempt. Made sure the construction crews were in compliance with environmental regulations, permits, and project-specific mitigation measures. Specific types of construction monitoring included tree trimming activities, pre-construction vegetation clearance, site grading, electrical transmission tower construction, fiber-optic cable installation, and fire access road grading during brush fire emergencies.

Served as raptor biologist on Continuing Life Communities project. Tasks involved delineating buffer zones around active nests and monitoring nesting raptor behavior during equipment operation, vegetation removal, and buffer encroachment. For nesting raptors, recorded detailed notes on food deliveries, prey items brought, nestling development, incubation, and response to disturbance.

Received training on the ecology, identification, handling and sexing of threatened desert tortoise and acquired over 500 field hours with tortoises in the presence of a permitted handler. Desert tortoise monitor for a gas pipeline being installed in the Mojave Desert. Monitored known hibernating tortoises and searched for unknown tortoise individuals and burrows. Conducted constant surveillance of areas where heavy equipment was being utilized for pipeline installation.

Received training for the federally endangered southwestern arroyo toad, which included learning their ecology, natural history, handling techniques, and species identification by sight and sound. Assisted with southwestern arroyo toad presence/absence surveys.

Education

B.S., Wildlife Biology, Humboldt State University, Arcata, CA

Permits

Federal endangered species recovery permit to conduct California Gnatcatcher surveys, monitor nests, and remove brown-headed cowbird eggs
Subpermittee to band and nest monitor least Bell's vireo and coastal cactus wren
Subpermittee for banding raptors and passerines
Trained and certified to conduct marbled murrelet surveys
California scientific collecting permit

Workshops & Certifications

Southwestern willow flycatcher workshop attendance
Desert Tortoise Council-approved for conducting desert tortoise monitoring surveys

CASSIDY GRATTAN

3906 S Mount Angeles Road 360.808.3029
Port Angeles, WA 98362 cassidy.grattan@gmail.com

EDUCATION

B.S. Environmental Science Graduated Dec 2004
Western Washington University, Bellingham, WA

SKILLS

Birds: ID by sight and sound; Point counting; Migration monitoring; Territory mapping; Nest searching; Bird capture, banding and bleeding; Band resighting

Herps, Fish & Mammals: Reptile, Amphibian, Fish and Mammal ID and surveys; Trap deployment; Amphibian and small mammal capturing and PIT/Ear tagging; Fish removal

Navigation: Garmin/Trimble GPS; Map and Compass; Off-road/back-road 4W driving; Extensive backcountry hiking; Camping/Living in remote field sites; Wilderness First Aid/CPR

Computer/Equipment: Microsoft Office & FoxPro; Basic GIS; Data Management & Analysis; Operation of video/audio/sonar-monitoring equipment

POINT COUNT EXPERIENCE

Avian Research Assistant Mar – July 2011/2012
Department of the Interior – Olympic National Park
Supervisors: Scott Gremel
Projects: Long term Spotted Owl monitoring; Avian fire ecology

- Conducted point counts in high-elevation, recent burn sites
- Surveyed for owls in historical nesting territories by hooting and using playback recorders
- Searched for and monitored SPOW nests
- Fed, Captured & Banded owls (sexed, aged, collected feathers)
- Navigated off-trail using map, compass and GPS
- Extensive backcountry camping in inclement weather

ISSJ Researcher Nov 2011 **&** Sept – Nov 2010
The Nature Conservancy – Santa Cruz Island
Supervisors: Katie Languin/Mario Pesendorfer
Project: Determined location and examined foraging behavior of Island Scrub Jays

- Conducted point counts
- Resighted color- banded birds
- Conducted foraging/caching observations on focal pairs
- Trapped jays using ground-traps and mist-nets and assisted with banding
- Vegetation/acorn surveys

Point Counter/Nest Searcher Mar – May 2010
PRBO – Mohave and Sonora Desert (Lower Colorado Flyway)
Supervisor: Chris McCreedy
Project: Examined breeding and migrant bird populations that rely on Sonoran/Mojave Desert thorn woodlands and the affects of OHV use

- Conducted point counts for all resident and migratory birds
- Nest searched along washes in the Lower Colorado River Valley and Central Arizona
- Assessed official and unofficial OHV use
- Data entry using FoxPro
- Extensive 4W driving and remote camping

Crew Leader/Field Technician Mar – July 2009
USGS – Virgin River, NV
Supervisor: Dr. Susan Roberts
Project: Assessed avian communities within tamarisk and tamarisk removal habitats
- Led crew of four; Created maps, data sheets and schedules
- Created daily Spot maps of all birds that were detected aurally and visually
- Nest searched for all breeding species
- Extensive trail cutting and maintenance
- Conducted vegetation surveys
- Data entry and management
- GIS mapping and georeferencing
- 4W driving

Point Counter/Nest Searcher May – July 2006 & 2007
University of Montana – Glacier NP, Flathead NF, MT
Supervisor: Megan Fylling
Project: Examined population dynamics of black-backed and three-toed woodpeckers in logging treated areas
- Conducted point counts in post-fire habitats for resident and migratory birds
- Nest searched for cavity nesters; found ~50 nests
- Woodpecker "playbacks" performed to help locate woodpecker nest sites
- Nest searched for cavity nesters including: BBWO, HAWO, MOBL, MOCH, RBNU, TTWO
- Conducted vegetation surveys
- Navigated off-trail using map and compass

Point Counter/Crew Leader June – Sep 2004 & 2005
UC Davis – Shasta-Trinity NF, CA
Supervisor: Dr. Karen Pope
Project: Investigated the impact of introduced trout on insect, amphibian, reptile, bird, and bat communities in headwater lakes in the Trinity Alps wilderness, Northern California
- Conducted point counts for resident and migratory birds
- Nest searched for target birds including: DEJU, OCWA, SOSP, YWAR

RELEVANT AVIAN EXPERIENCE

Nest Searcher/Bird Bander May – Aug 2010
Smithsonian – White Mountains, NH
Supervisor: Sara Kaiser
Project: Temporal and spatial variability in the abundance and demography of BTBWs
- Nest searching and monitoring**,** Territory mapping, Resighting banded birds
- Target mist netting, banding and bleeding adults and nestlings
- Set-up of video/audio recording equipment for nest monitoring

Burrowing Owl Biologist Mar – May 2007 & 2008
Wildlife Research Institute – Imperial Valley, CA
Supervisor: Dr. Jeff Manning, Dr. Jeff Lincer
Project: Assessed population, habitat preferences and behavior of burrowing owls
- Created survey routes along the irrigation district's right-of-ways
- Used a Trimble GPS unit to record point locations of active burrows/territories, nest and vegetation characteristics and identified banded owls
- Recorded point locations for avian and reptile species of concern

Field Assistant Jan – Feb 2007
Jatun Sacha Foundation — Ecuador, Amazon & the Galápagos
Project: Assisted with reforestation efforts and eco-tourism development in the Amazon Foothills and on San Cristobal Island, Galapagos
- Removed invasive plant species and grew/planted native saplings
- Searched for and marked Galapagos Petrel nest sights
- Led environmental education demonstrations

Spotted Owl Biologist Apr – July 2005
USGS – Yosemite NP, CA
Supervisor: Dr. Susan Roberts
Project: Investigated nesting success of California Spotted Owl in relation to habitat types, specifically recently burned forests vs. unburned, fire suppressed forests
- Hooted for owls at designated stations along off-trail transects
- Fed lab mice to owls in attempt to capture and/or determine breeding status
- Captured and Banded owls (sexed, aged, collected feathers)
- Navigated off-trail using map, compass and GPS; Extended camping in the backcountry

Lab Assistant Apr 2004
Trumpeter Swan Society — Bellingham, WA
Supervisor: Martha Jordan
Project: Examined impact of lead poisoning in Trumpeter Swans foraging in Skagit Valley.
- Set-up and maintained a sterile lab
- Conducted swan necropsies; Collected liver and heart samples

AMPHIBIAN, REPTILE, FISH, INSECT & MAMMAL EXPERIENCE

Field Research Assistant August – October 2011/2012
Olympic National Park
Supervisors: Steve Fradkin
Projects: Long term high lake Monitoring
- Performed water quality tests in high mountain lakes
- Amphibian surveys/tail clipping
- Hand-capture of amphibians
- Benthic invertebrate capture and ID
- Mercury testing
- Non-native trout removal via gill net

Field Technician July – Oct 2009
USGS – Yosemite NP

Supervisor: Dr. Susan Roberts and Dr. Steve Ostoja
Project: Assessed the impact of horse stock on potential breeding habitat of amphibians and mapped high country meadows

- Visual surveys for Yosemite Toad and Sierra Nevada Yellow-legged frog and reptiles
- Tadpole identification
- Chytrid fungal checks
- Mapped streams and ponds using GPS; measured depth, temperature and vegetation
- Noted fish presence/absence and livestock presence/severity
- Navigated off-trail using map, compass and GPS
- Extended camping in backcountry

Crew Leader/Field Research Assistant June – Sep 2004 & 2005
UC Davis – Shasta-Trinity NF, CA
Supervisor: Dr. Karen Pope
Project: Investigated the impact of introduced trout on insect, amphibian, reptile, bird, and bat communities in headwater lakes in the Trinity Alps wilderness, Northern California

- Set-up, maintained and retrieved aquatic and terrestrial insect traps
- Collected and identified dragonflies using butterfly nets
- Visual encounter surveys for amphibians and reptiles
- Marked/re-captured Cascade frogs and garter snakes using PIT tags; recorded location and morphometrics of the animals upon capture
- Deployed and maintained remotely-operated Anabat acoustic bat monitoring stations

Field Research Assistant Apr – July 2005
USGS – Yosemite NP, CA
Supervisor: Dr. Susan Roberts
Project: Investigated nesting success of California Spotted Owl in relation to habitat types, specifically recently burned forests vs. unburned, fire suppressed forests

- Trapped and ear tagged small mammals for population estimates

Field Assistant Sep 2008/Jan-Feb 2004
Olympic NP/North Cascades NP
Project: Carnivore surveys in Elwha valley as part of a system wide inventory before dam removal (Olympic). Winter carnivore inventory (Cascades)

- Deployed bear snares (Olympic)
- Deployed remote camera stations; Baited stations with carcasses
- Used mustelid musks and set-up visual attractants
- Retrieved camera memory cards and changed out batteries (Cascades)

REFERENCES

Scott Gremel Email: scott_gremel@nps.gov
Wildlife Biologist Phone: 360.460.8159
Spotted Owl Monitoring Project
Olympic National Park Service

Chris McCreedy Email: cmccreedy@prbo.org
Mojave and Sonoran Deserts Phone: 415.717.7426
PRBO Conservation Science

University of Arizona
School of Natural Resources

Mary Coolidge
Asst. Conservation Director
Audubon Society of Portland

Email: peregrinity@gmail.com
Phone: 503.866.3779

Elizabeth Marie Donadio
3906 S Mount Angeles Road
360.565.6990
Port Angeles, WA 98362
donadio.elizabeth@gmail.com

EDUCATION & SKILLS

B.S. Wildlife Management & Conservation
Graduated May 2005
Humboldt State University, Arcata, CA

CERTIFICATIONS
Desert Tortoise Surveying, Monitoring and Handling Techniques Workshop
Nov 2012

SKILLS
Birds: Point Counting; Locating & Monitoring 900+ passerine, raptor & seabird nests; Trapping & Banding 5,000+ passerines, raptors & seabirds; Resighting banded birds; Radio Collaring & Telemetry

Herps, Fish & Mammals: Reptile, Amphibian, Fish and Mammal ID and surveys; Trap deployment; Small mammal capturing and PIT/ear tagging

Navigation: Garmin/Trimble GPS; Map and Compass; Off-road/back-road 4W driving; Extensive backcountry hiking; Camping/Living in remote field sites; First Aid/CPR

Computer/Equipment: Microsoft Office & FoxPro; Basic GIS; Data management & analysis; Operation of video/audio monitoring equipment

AVIAN RESEARCH EXPERIENCE

Biological Technician Jun - Jul 2012
Alphabiota/Quad Knopf - Elk Hills Oil Field, CA
$50/hr - 50hrs/wk
Supervisors: Yancey Bissonnette/Jeff Firkins
Project: *Examined the avian, mammalian and reptilian communities utilizing the oil fields*

- Recorded all birds observed by sight or sound for each survey site (2 - 4/day)
- Flagged and marked point locations for Loggerhead Shrike & Le Conte's Thrasher
- Marked Burrowing Owl burrows/nests

Burrowing Owl Biologist Mar - May 2012
URS - Blythe & Ludlow (Sonora West & Siberia), CA
$65/hr - 60hrs/wk
Project: *Determined presence/absence of BUOWs in the Sonoran and Mohave desert*

- Marked point locations of live BUOWs with GPS
- Marked active and potential BUOW burrows with GPS
- Monitored potential and active BUOW burrows, recorded presence/absence and behavior

- Conducted point counts for all avian species (Ludlow)

Island Scrub-Jay Researcher
Sept - Nov 2010
The Nature Conservancy - Santa Cruz Island $15/hr - 60hrs/wk
Supervisors: Katie Languin/Mario Pesendorfer
Project: *Examined the foraging behavior of ISSJs; investigated genetic variability amongst ISSJs*

- Re-sighted color-banded birds
- Conducted point counts
- Conducted foraging/caching observations on focal pairs
- Trapped jays using ground-traps and mist-nets; Assisted with banding
- Conducted vegetation and acorn surveys

Black-throated Blue Warbler Biologist
May - Aug 2010
Smithsonian - White Mountains, NH
$10/hr - 60hrs/wk
Supervisor: Sara Kaiser
Project: *Examined the temporal and spatial variability in the abundance and demography of forest birds*

- Re-sighted color-banded BTBWs and Mapped territories
- Searched for and monitored BTBW nests (found ~25 nests); Found Ovenbird nests (5)
- Target mist-netted, banded and bled adults and nestlings
- Set-up of video/audio recording equipment for nest monitoring

Point Counter/Nest Searcher
Mar - May 2010
PRBO - Lake Havasu, AZ
$2000/mo - 50hrs/wk
Supervisor: Chris McCreedy
Project: *Examined breeding and migrant bird populations in the Sonoran and Mohave Desert*

- Conducted point counts for all resident and migratory birds along washes within the Lower Colorado River Valley and Central Arizona
- Found ~180 nests including: ABTO, ANHU, ATFL, BETH, BEVI, BTGN, CAWR, COHU, CRTH, GIFL, GIWO, GRRO, HAHA, LEGO, LEOW, LOSH, NOMO, PHAI, RTHA, VERD
- Assessed official and unofficial OHV use
- Entered data using FoxPro

Nest Searcher
May - July 2009
UC Santa Barbara - Virgin River, NV $1800/mo - 40hrs/wk
Supervisor: Dr. Mike Kuehn
Project: *Examined bird nesting and feeding behavior in native cottonwood-willow-mesquite stands in comparison to invasive Tamarisk scrub along the Virgin River floodplain*

- Searched for and monitored bird nests (found 67)

- Species included: ABTO, BCHU, BEVI, COYE, LUWA, MODO, SOSP, YBCH and YWAR
- Deployed cameras on active nests
- Built and maintained trails in Tamarisk scrub

Laysan Teal Data Manager
Mar - Apr 2009
USGS - Volcano National Park, Hawaii
$1400/mo - 40hrs/wk
Supervisor: Dr. Michelle Reynolds
- Entered, edited and proofed data using Excel
- Maintained active and archival databases; Organized biological samples
- Revised and edited reports and assisted with data collection protocol development

Biological Technician
Nov 2008 - Mar 2009
USFWS - Midway Atoll NWR Room &
Board - 60hrs/wk
Supervisor: Marc Romano
- Banded and monitored Laysan Albatross, Black-footed Albatross, and Red-tailed Tropicbirds
- Monitored Laysan Teal: conducted population counts and color band re-sight surveys, and assisted with trapping and banding
- Located and monitored RTTB nests (found 5 nests)
- Trained and supervised incoming volunteers

Lead Bird Bander
Sep - Nov 2008
USM- Bon Secour NWR, AL
$1800/mo - 60hrs/wk
Supervisor: Jaclyn Smolinsky
Project: *Assisted in the study of trans-gulf migration, operated the banding station, set and maintained 30 mist-nets and processed over 1,600 birds of 65 species*
- Birds were aged using molt limits and plumage, sexed, skulled, measured (wing, tarsus, bill) and were given a fat and muscle score
- Gathered feather and fecal samples
- Trained and supervised two field assistants
- Edited and entered banding data into FoxPro
- Conducted berry counts and vegetation surveys

Burrowing Owl Biologist
Mar - May 2007 & 2008
Wildlife Research Institute - El Centro, CA
$20/hr - 50hrs/wk
Supervisors: Dr. Pete Bloom, Dr. Jeff Lincer and Dr. Jeff Manning
Project: *Examined the presence and abundance of Burrowing Owls in the Imperial Valley*
- Created survey routes along the irrigation district's right-of-ways
- Used Trimble GPS to record point locations of active burrows, territories and nests
- Located ~100 nests
- Recorded diurnal behavior from a blind for 14 consecutive hours (2007)

- Examined various survey methods measuring disturbance to owls (2008)

Crew Leader/Field Technician
Jan - Aug 2008
Arkansas Tech University - Marshall, AR
$15/hr - 50hrs/wk
Supervisor: Jacob Cowan
Project: *Examined nesting and brood ecology of Northern Bobwhite*
- Conducted avian surveys for all resident and migratory birds
- Supervised and trained a field assistant, created daily activity schedules and data forms
- Built funnel-traps, trapped and radio-collared adults and color marked/measured chicks
- Used radio-telemetry to track behavior, locate nesting birds and monitor brood foraging
- Found 11 nests

Passerine & Owl Bander
Sep - Oct 2007
Thunder Cape Bird Observatory - Ontario
Room & Board - 80hrs/wk
Supervisor: John Woodcock
Project: *Assisted in the study of long-term migration monitoring*
- Operated mist, hawk and owl nets (night trapping with playback)
- Recorded all birds seen or heard from the observation deck
- Extracted over 2,000 and processed 800+ birds (200+ Northern Saw-Whet Owls)

Songbird Biologist
Apr - Jul 2006
OSU/PRBO - Sheldon Wildlife Refuge, NV
$2000/mo - 60hrs/wk
Supervisor: Aaron Holmes
Project: *Examined the response of sagebrush-obligate songbirds and small mammals to wildfire*
- Color-banded BRSPs, VESPs & GTTOs using target mist-netting; Re-sighted banded birds
- Located and monitored songbird nests (found over 200 nests)
- Mapped songbird territories using GPS
- Deployed video monitoring systems on nests; Entered banding data using FoxPro

Nest Searcher/Point Counter
May - Aug 2005
OSU - Siskiyou National Forest, OR
$13/hr - 40hrs/wk
Supervisor: Michelle Cannon
Project: *Examined the effects of a large-scale, stand-destroying forest fire on bird populations*
- Conducted point counts for all avian species
- Focal species: AMRO, BHGR, BRCR, LAZB, RBNU, WEBL, WETA, WEWP and YRWA

- Searched for and monitored all ground, cup and cavity nesters (found over 200 nests)

Field Assistant/Lab Technician May - Dec 2004
HSU - Klamath National Forest, CA
$10/hr - 50hrs/wk
Supervisor: Chris Rall
Project: *Examined the response of bark-gleaning birds and their prey to thinning and prescribed fire*
- Visually and/or aurally located target species: BRCR, WBNU and WHWO
- Recorded foraging behavior and located and monitored nests (found ~30 nests)
- Collected arthropod samples and identified, labeled and counted all insects

Research Assistant
Mar - May 2004
HSU - Humboldt Bay, CA
$10/hr - 15hrs/wk
Supervisor: Susannah Ferson
Project: *Examined interactions between eelgrass and Black Brant*
- Kayaked to and sampled eelgrass beds in Humboldt Bay
- Prepared vegetation samples to measure the growth response of eelgrass, clipped eelgrass and mimicked "fertilization" by adding fecal matter

California Condor Lab Assistant
Feb - May 2004
HSU - Humboldt Bay, CA
Volunteer - 15hrs/wk
Supervisor: Chris West
Project: *Organized video footage for a study that examined the factors influencing vigilance expressed by reintroduced California condor*
- Examined foraging birds, identified individuals by color-band and recorded time spent by each at carcass

REPTILE, AMPHIBIAN, FISH & BOTANICAL EXPERIENCE

Biological Technician Jun - Jul 2012
Alpha Biota/Quad Knopf - Elk Hills Oil Field, CA
$50/hr - 50hrs/wk
Supervisor: Yancey Bissonnette/Jeff Firkins
Project: *Examined the presence/absence of Blunt-nosed Leopard Lizards (BNLL)*
- Surveyed for adult, sub-adult and juvenile BNLL
- Counted number of individual Western Whiptail and Side-blotched Lizards
- Flagged point locations and marked with GPS: San Joaquin Kit Fox, Nelson's Antelope Squirrel and Giant Kangaroo Rat

Biological Technician Mar - May 2012

URS - Blythe & Ludlow (Sonora West & Siberia), CA
$65/hr - 60hrs/wk

- Recorded GPS locations for active and potential kit fox burrows
- Recorded GPS locations of incidental encounters: Mohave Fringe-toed Lizards, Desert Tortoise (DETO) remains with age classification, potential DETO burrows and live DETOs

Amphibian Field Technician
Jul - Aug 2009
USGS - Yosemite National Park
$15/hr - 40hrs/wk
Supervisor: Dr. Steve Ostoja
Project: *Assessed the impact of horse stock on potential breeding habitat of Yosemite Toad in terrestrial and aquatic habitats in high-elevation ecosystems in Yosemite*

- Identified and recorded all amphibians and reptiles by life stage
- Mapped streams and ponds using GPS; measured depth, temperature and vegetation
- Noted fish presence/absence and livestock presence/severity

Rangeland/Riparian Ecologist
Jul - Aug 2007
Ecosystems Management Inc. - Great Falls, MT $15/hr - 50hrs/wk
Supervisor: Nathan Hoeme
Project: *Conducted surveys in upland prairie, forest and riparian habitats on BLM allotments*

- Examined the integrity of the biotic community, soil/site stability & hydrologic function
- Identified over 200 plant species and classified the soil type
- Examined 17 indicators of rangeland health

Marine Protected Areas Extension Worker
May - Jul 2007
US Peace Corps - Negros, Philippines
Room & Board
Project: *Worked to promote an understanding of marine resources*

- Underwent technical, language (Visayan) and cultural training
- Conducted coral reef, mangrove and fish surveys with local government and fishermen

REFERENCES

Dr. Mike Kuehn Cell: 805.705.2172
Senior Biologist
avian34@gmail.com
Bloom Biological

Dr. William Boarman Cell: 619.861.9450

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science@cox.net

Chris McCreedy Cell: 415.717.7426
PRBO Conservation Science cmccreedy@prbo.org
& University of Arizona
School of Natural Resources

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JASON BENNETT

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EDUCATION

Southern Oregon University, Ashland (GPA 4.0) **M.A.T. June 2011**

- School of Education
- Area of endorsement: Biology

California State University, Long Beach (GPA 4.0) **M.S. December 1999**

- Department of Biology
- Thesis: Home range and habitat use of Great Horned Owls in southern California

University of California, Santa Barbara (GPA 3.4) **B.A. March 1993**

- Department of Biology, Ecology and Evolution

WORK HISTORY

Southern Oregon University, Ashland, OR
Part-Time Adjunct Instructor in Biology **September 2011 to present**

Duties: Instructor for Biology 100 and 200 level lecture (1) and laboratory (13) courses. The biology 100 series for non-science majors covers a broad sweep of introductory biology. The 200 level for science majors is introductory biology is more in depth and rigorous than the 100 level. Duties include preparation and presentation of materials for instruction, reviewing student papers, holding office hours, and weekly staff meetings.

Supervisor: Michael Parker (541) 552-6749

Ashland & Medford School Districts, Ashland & Medford, OR
Substitute Teacher **September 2011 to present**

Duties: Substitute teacher for numerous classes at the middle and high school level, including biology, chemistry, social studies, physical science, general science, and multiple subjects.

Klamath Bird Observatory, Ashland, OR
Biologist **May 2012 to August 2012**

Duties: Organize and conduct field surveys for resident and migrant bird species throughout southern Oregon and Northern California. Assist with office management, data entry, and data management.

Supervisor: Jaime Stephens (541) 201-0866 ext. 2

Rogue Community College, Medford, OR
Part-Time Instructor in Biology & Chemistry **September 2009 to June 2011**

Duties: Lead instructor for Biology 211 (1 term). Course topics: introduction to science, organic chemistry, macromolecules, cell structure and function, cell division, and genetics.
Instructor for Biology 200 level (9) and Chemistry 100 (1) level laboratories included preparation of instructional and assessment material for 3 hour weekly labs.

Supervisor: Jim Van Brunt (541) 956-7081

National Park Service, Inventory and Monitoring Program, Fort Collins, CO
Data Management Assistant **March 2008 to July 2010**

Duties: Develop and manage content and websites, provide staff support and assistance with data management and database development. Manage the NPS Natural Resource Publication Series, including general and technical scientific reports. Develop and produce professionally formatted project summary documents and templates, and assist supervisors with various projects and reports.

Supervisors: Margaret Beer (970) 267-2183, Steven Fancy (970) 225-3571

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Western Ecosystems Technology-Inc. Environmental Consulting, Cheyenne, WY
Wildlife Biologist/GIS specialist **March 2007 to March 2008**

Duties: conduct various surveys for raptors and songbirds at potential wind energy development sites. Geographic referencing of biological data, entering field data, and report writing and editing.

Supervisor: Rhett Good (307) 634-1756

PISCO (Partnership for Interdisciplinary Studies of Coastal Oceans), OSU, Corvallis, OR
Program Manager **September 2005 to March 2007**

Duties:

- *Supervisor*: Supervise activities of 4 technicians and 8+ interns, post job openings, review candidates, and hire for all position levels.
- *Database Manager*: Collect, compile, normalize, and standardize data produced by lab.
- *Budget Manager*: Manage large budget and projected spending by several research teams.
- *Lab Facilitator*: Lead lab meetings, maintain flow of samples to analysis lab, prepare monthly budget reports, approve expenses, and purchase equipment and software.

Supervisor: Bruce Menge (541) 737-5358

University of Hawaii, Kilauea Field Station, Hawaii Volcanoes National Park, HI
Biologist **August 2003 to December 2004**

Duties: Train volunteers in bird banding techniques and data collection, conduct standardized bird point counts along established transects, compile and quality control data, review applications, interview and hire volunteers, coordinate field gear, vehicle maintenance, housing, and new equipment.

Supervisor: Patrick Hart (808) 974-7645

Wyoming Natural Diversity Database (Natural Heritage Program), Univ. of WY, Laramie
Research Scientist **January 2000 to July 2003**

Duties:

- *Field Biologist:* Conduct field surveys for birds and other vertebrate species and write reports
- *Assistant Database Manager:* Manage database for rare plant and animal observations across Wyoming.
- *Assistant Web-master:* Assist with development and maintenance of the WYNDD website
- *Manager of MAPS Bird Banding Station (3 years)*: Spearhead startup - including site selection, registration, gathering support and volunteer roundup. Direct station activities and volunteer training.

Supervisor: Gary Beauvais (307) 766-3027

Jason R. Bennett ♦ 101 Alida Street, Ashland, OR 97520 ♦ 541-810-8273 ♦ j_bob_bennett@yahoo.com

Brief of positions held between 1995 and 2002:

University of Wyoming, Dept. of Zoology & Physiology, Laramie, WY
Seasonal Wildlife Biologist Intermittent **Sep. 1998 to Aug. 2002**
Assist with study of gene flow among Boreal Owl populations.

U.S.F.S. Pacific Northwest Research Station, Juneau, AK (Field site Chiloé, Chile, SA)
Volunteer Seasonal Wildlife Biologist **Nov. 1998 to Feb. 1999**
Assist with forest fragmentation and nesting success of the Chucao Tapaculo in Chile.

Harmsworth Associates- environmental consultants, Mission Viejo, CA
Wildlife Biologist **May 1997 to Sep. 1998**
Conduct presence/absence or breeding surveys for threatened bird and amphibian species.

California State University, Long Beach, CA
Graduate Student **Sep. 1996 to Jun. 1998**
- Teaching Assistant for general biology lab (total of 7 classes).
- Vertebrate Museum Assistant: prepare avian study skins (approx. 100).

San Diego State University, CA
Biologist
- Field Technician for MAPS Bird banding stations **Apr. 1996 to Sep. 1998**
- Field Technician for Least Bell's Vireo study **Apr. 1996 to Aug. 1997**

National Biological Service, San Diego, CA
Biologist GS 05 **Mar. 1996 to Mar. 1997**
Assist with study of Western Snowy Plover distribution, abundance, and nesting success in southern California.

U.S. Forest Service, Redwood Sciences Lab., Arcata, CA
Biologist GS 05 **Apr. 1995 to Aug. 1995**
Assist with nesting success and territory occupancy of California Spotted Owls in Northern California

National Biological Service, Olinda Research Facility, HI
Volunteer Biologist **Jan. 1995 to Mar. 1995**
Hawaiian forest bird banding and monitoring, Maui.

University of Hawaii, Hakalau Forest NWR, HI
Volunteer Biologist **Oct. 1993 to Dec. 1994**
Hawaiian forest bird banding and surveys in Hakalau Forest National Wildlife Refuge, Hawaii.

Jason R. Bennett ♦ 101 Alida Street, Ashland, OR 97520 ♦ 541-810-8273 ♦ j_bob_bennett@yahoo.com

DIGITAL SKILLS

Micorsoft Office (Access, Excel, Word, PowerPoint), Promethian ActivBoard, Adobe (Dreamweaver, Acrobat, InDesign, and Photoshop).

PUBLICATIONS

Bennett, J., and P. H. Bloom. 2005. Home range and habitat use by Great Horned Owls (*Bubo virginianus*) in southern California. Journal of Raptor Research 39:119-126

Bennett, J. 2003. Evidence for Northern Waterthrushes breeding in southeastern Wyoming. Western Birds 34:108-110.

Bennett, J., and W. S. Smithson. 2001. Feeding associations between Snowy Egrets and Red-breasted Mergansers. Waterbirds 24: 125-128.

Bennett, J. 1999. Home range and habitat use by Great Horned Owls in southern California. California State University, Long Beach. Masters' thesis collection, Dept. of Biological Sciences.

TECHNICAL REPORTS

Bennett, J. and G. Beauvais. 2003. Albany County waterbird surveys (2002-2003) and raptor surveys (2003). WYNDD unpublished data. 4 pp. (http://uwadmnweb.uwyo.edu/wyndd/)

Bennett, J. 2001. Survey for Yellow-billed Cuckoos (*Coccyzus americanus*) on Wolf Creek Ranch, Sheridan County, WY. Prepared for Wolf Creek Charitable Foundation, 100 Rapid Creek Road, Sheridan, WY 82801. (http://uwadmnweb.uwyo.edu/wyndd/)

Bennett, J., and D. Keinath. 2001. Status and distribution of the Yellow-billed Cuckoo (*Coccyzus americanus*) in Wyoming. 54pp. Report prepared by Wyoming Natural Diversity Database, University of Wyoming, Laramie, WY. (http://uwadmnweb.uwyo.edu/wyndd/)

REFERENCES

Jaime Stephens (supervisor)
Klamath Bird Observatory
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NPS Inventory and Monitoring Program
Fort Collins, Colorado 80525
steven_fancy@nps.gov (970) 225-3571

Michael Parker (department chair)
Southern Oregon University
Ashland, Oregon 97520
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Margaret Beer (supervisor)
NPS Inventory and Monitoring Program
Fort Collins, Colorado 80525
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Milwaukie, OR 97222
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Research and Field Experience

Avian Nest Searcher 4/11-9/11
40+hrs/week for 14 weeks $3600/mo
SWCA, Inc, Flagstaff, AZ
Found and monitored nests of the endangered southwestern subspecies of the Willow Flycatcher via kayak on the Gila River in southeastern Arizona.

Biological Field Technician 1/11-3/11
40+hrs/week for 8 weeks, $1800/mo
Rocky Mountain Bird Observatory, Fort Collins, CO
Mist netted for all species present. Conducted line transects for all species grassland birds in the grasslands of west Texas including quantitative vegetation surveys. Training conducted in northern Mexico.

Volunteer Observer/Trapping Assistant 9/10-10/10
8hrs/day for 2 weeks, unpaid
Hawkwatch International, Salt Lake City, UT
Assisted at the Bonney Butte, OR station in observation counts of migrating raptors and in trapping and banding.

Biological Field Technician 5/10-7/10
40hrs/week for 3 months, GS-06 payscale ($16.73/hr)
USGS, Snake River Field Station Boise, ID
Conducted all species bird point counts and quantitative vegetation studies in the aspen woodlands of the Ruby Mountains in northeastern Nevada. Much of the data was collected by backpacking on and off trails.

Avian Field Intern 3/10-5/10
40 hrs/week for 10 weeks, $2000 monthly stipend
Point Reyes Bird Observatory, Point Reyes Station, CA
Conducted all-species point counts in Sonoran desert washes in the lower

Colorado drainage.

Bird Monitoring Intern 1/10-3/10
40 hrs/week for 8 weeks, $200 monthly stipend
Rocky Mountain Bird Observatory, Fort Collins, CO
Surveyed for wintering grassland bird species in Chihuahuan desert grasslands using telemetry. Mist netted for all species present. Carried out visual censuses for grassland and scrub vegetation.

Volunteer Banding Station Assistant
5 hrs/week for 12 weeks, unpaid
Willamette University, Salem, OR

Volunteer Vaux's Swift Monitor 9/09
40 hrs/week for 4 weeks, unpaid
Audubon Society of Portland
Conducted evening counts at urban roost sites in the Portland area.

Volunteer Amphibian Surveyor 7/09
40 hrs/week for 4 weeks, unpaid
USGS—Yosemite National Park
Backpacked the alpine reaches of the Hoover Wilderness in Yosemite conducting surveys of amphibians and vegetation.

Biological Field Technician 3/09-7/09
40 hrs/week for 16 weeks, GG-05 ($15.68/hr)
USGS—United States Geological Society, Henderson, NV
Conducted all-species area searches and behavioral observation for birds on riparian plots of the Virgin River, Nevada.

Teaching Assistant 9/99—5/00
10 hrs/week for 13 weeks, $8.50/hr
Genetics Lab, Lewis & Clark College.
Prepared media for experiments, conducted data entry, and taught scientific
methodology.

Reef Mapping Assistant 9/98—2/99
20 hrs/week for 2 weeks, unpaid
Malindi, Kenya. Assisted biologists in mapping the reef ecology near Malindi

using GPS. Analyzed and presented data.

Teaching Experience

Writing Instructor 9/06—12/09
Portland Community College, Portland, OR. Taught undergraduate composition.

Writing Instructor 9/03—9/06
University of Washington, Seattle, WA. Taught undergraduate composition and creative writing.

Education

University of Washington, Seattle, WA, June 2005
MFA in Creative Writing

Lewis & Clark College, Portland, OR, May 2000
B.A. in Environmental Science
Semester Overseas in East Africa (Ecology focus)

Skills and Languages

Proficient aural and visual identification of Western avifauna. Familiarity with standard bird abbreviations. Extensive experience backpacking on and off trail. Familiarity with basic wilderness first aid (CPR/AED/First Aid certified by Red Cross). Facility with GPS systems, arcGIS and telemetry.

Proficient Spanish.

References

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Steelheadlayne@gmail.com, 360-770-0854

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cmccreedy@prbo.org (415)717-7426

Susan Roberts, PhD, USGS Wildlife Ecologist
susan_roberts@usgs.gov (209) 375-9557

Zachary Ormsby

7764 Pickering Cir. Reno, NV. 89511

Tel: *858.736.6909* **Email:** *zacormsby@gmail.com*

PROFILE

I grew up in the deserts of Nevada with a profound curiosity and love of our natural environment. The desert taught me the fundamentals of sustainability, and the benefits of hard work at an early age. My life experiences and eduction have enabled me to ask better questions, and find more opportunities for learning. I am committed to the preservation of our natural resources, while striving to find a balance with the needs of a growing human population.

I follow protocol and collect accurate, consistent data, in a safe and time efficient manner. I maintain a bevy of field gear including a high clearance four-wheel drive, full insurance, and advanced understanding of electronics, computers, and emerging technologies. The desert is my favorite place to work, and harsh conditions are where I excel. The last 10+ years of my life has been dedicated to the study of Raptors and Desert Ecosystems. I can contribute effectively to a variety of scientific surveys, for short or long term projects, on a team or autonomously.

EDUCATION

University of San Diego. San Diego, CA.
B.A. *Ethno-Biology.*

** Mentored by Ornithologist, Dr. Amadeo Rea.*
** Specimen Collection training with Phil Unitt.*
** 3-day workshop with Jane Goodall.*
** Built Native Garden on campus used as learning resource.*

San Diego Mesa College. San Diego, CA.
A.A. *Transfer Studies.* Emphasis, *Real Estate.*

**Honored by school President during Graduation Ceremony for outstanding personal and academic achievement.*

SKILLS

I am highly attuned to desert ecosystems and have detailed experience surveying birds-of-prey, discerning the plumage variations of several species, and locating nesting/roosting sites. I can age Golden Eagles from considerable distance and have raised eaglets from a hack house. I have detailed backcountry experience as a minimalist and with a full work station, for both short and extended periods of time. Capable of walking surveys up to 20 miles per day and/or traveling via any means necessary. Adept 4x4 capabilities and vehicle ownership allows me to go wherever the job requires, with expert utilization of GPS, map/compass, and other field equipment as needed. I have the attitude, skill, experience, and equipment necessary to get the job done right, on-time, with-in budget, according to protocol.

EXPERIENCE

FIELD BIOLOGIST URS; Blythe, Ca. **3/26/12-1/17/13**

100% Field Surveys

- ***Team lead for 6 person crew.***
- ***Conduct daily safety meetings.***
- ***Location selection for raptor observation points on a large-scale solar project, with scientific justification co-authored by Dr. Jeff Lincer and Mike Neal.***
- ***Raptor observation point counts.***
- ***Spring and Fall migratory raptor observation point counts.***
- ***Burrowing owl transect surveys and burrow confirmations.***
- ***Gila woodpecker acoustic surveys.***
- ***Migratory bird observation transect point counts.***
- ***Migratory bird observation point counts.***
- ***Nest locating and reporting for Passerines and Raptors.***
- ***Anabat card exchange and field repairs.***
- ***Able to survey 20+ miles per day when necessary.***
- ***additional reporting of Desert bighorn sheep, Mojave Fringe-toed lizard, Desert tortoise, Kit fox, historical, geologic, and archaeological evidence, subject to extreme desert weather, terrain, and unexploded military ordinances. Off-road driving required for desolate back country surveys.***

RESEARCH ASSISTANT Great Basin Institute; Lake Tahoe, CA. **6/7/11-10/7/11**

Variety of duties performed for the Lake Tahoe Basin Management Unit Supervisors Office

- ***Transect surveys and acoustic monitoring for Spotted Owl, Goshawk, Peregrine Falcon.***
- ***Provided field interpretation, and birding techniques at Bald Eagle nesting locations.***
- ***Updated visitors on birding locations, wildflower blooms, mushroom foraging areas.***
- ***Sponsored to receive CRAM training and earned best grade in class.***
- ***Conducted wildlife workshops for local students.***

FIELD SCIENTIST Wildlife Research Institute (WRI); Ramona, CA. **4/1/03-4/30/09**

70% Monitor Eagle population, 20% Track and monitor various species, 10% Care for wildlife.

- ***Mentored by Dr. Jeff Lincer and Dr. James Hannan with additional work alongside Dave Bittner.***
- ***Long term monitor of San Diego County Golden eagle population.***
- ***Daily observation/documentation of GOEA nests during nesting season.***
- ***Weekly inventory surveys during non-nesting times of year, with additional reporting of other raptors.***
- ***Apply wing tags and leg bands to nestling GOEA. (often requiring a repel into the nest for removal and replacement, and always in a desolate back country location)***
- ***Applied radio and GPS transmitters to GOEA and assisted in location and transect surveys.***
- ***Participated in carcass recovery efforts.***

- ***Raised nestling eagles from a hack house.***
- ***Constructed Burrowing owl habitat.***
- ***Led a small team on a large effort studying mortality rates amongst animals in the Coachella Valley.***
- ***Tracked and documented movements of mammals within the Coachella Valley Watershed.***
- ***Investigated and reported fatalities within the water canal.***
- ***Performed day and night surveys for extended periods of time, subject to extreme weather and conditions.***
- ***Occasional care for a small Bison herd, including round-ups.***
- ***Assisted efforts of the annual Hawk Watch, public participation weekends with live Raptors.***
- ***Virtually all surveys required extreme 4x4 driving and back-country travel with a need for self-reliance.***

OWNER/PHOTOGRAPHER Zac Ormsby Photography; San Diego, CA **4/1/05-4/1/10**
Worked on several projects involving Visitor Interpretation and Scientific documentation.

- ***BLM: Energy in the US educational video.***
- ***USFS LTBMU: Interpretive Panels for Saw Mill Pond, South Lake Tahoe.***
- ***California DFG: Bear Intervention Program educational material.***
- ***Tahoe Institute for Natural Sciences: Localized educational/promotional material.***
- ***U.S.S. Midway: Interactive Display.***
- ***EnDev LLC: Staff Photographer, various commercial projects.***
- ***University of San Diego: Ministry Services.***
- ***published in magazine, book, television, newspaper, educational, promotional, conservation, and web outlets.***

DESERT ECOLOGIST, FIELD BIOLOGIST, RAPTOR SPECIALIST **4/1/03-present**
I continue to work as a Field Biologist on several projects. I can work 1099 or W-2.

- ***USFS LTBMU: 4/10-8/10, conducted Goshawk inventory monitoring in desolate locations throughout the Sierra Nevada Mtns in addition to successfully locating the only Peregrine nest in the area.***
- ***Cal State Parks: 4/10-8/11, Assisted on several surveys including; California spotted owl acoustic, Northern goshawk acoustic, bat surveys, Independently tracked and confirmed Mountain Lion presence within State Park boundaries, invertebrate stream sample surveys, peer reviewed a $150,000 grant application for Osprey studies, camped at a baited bear trap at a State Park to provide information to the public and protect the cage from unauthorized use.***
- ***Cal DFG: 4/10-8/10, Participate in the capture and release of nuisance bears in the Lake Tahoe Basin, and provide informative photos and video for public education purposes.***
- ***URS, GBI, and WRI: Experience listed above.***

ADDITIONAL EDUCATION

- CPR,FIRST AID, DEFIBRILLATOR
- LEVEL 1 MAMMAL TRACKING
- CRAM WETLAND MONITORING TECHNIQUES
- DESERT TORTOISE SURVEYING AND MONITORING TECHNIQUES
- RESIDENT RAPTORS OF THE SOUTHWEST WORKSHOP - Homer Hansen
- MIGRATORY RAPTOR ID WORKSHOP - Allen Fish

REFERENCES

Dr. Jim Hannan. Biologist. (858) 248-0929. jameshannan2003@yahoo.com

Dr. Jeff Lincer. Raptor Biologist. (619) 337-4060. jefflincer@gmail.com

Tristan McKee. Ornithologist. (510) 384-5579. atmckee@gmail.com

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Milwaukie, OR 97222
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Field Experience

Avian Biologist *3/13-5/13*
Colorado State University – Center for the Environmental Management of Military Lands
Contracted to perform inventories of birds on newly acquired parcels of Camp Guernsey, WY

Biological Field Technician *5/12-8/12*
Rocky Mountain Bird Observatory, Fort Collins, CO
Inventory & Monitoring for bird species in National Parks of the Chihuahuan Desert region

SW Willow Flycatcher Field Technician *5/11-8/11*
SWCA Environmental Consultants, Phoenix, AZ
Kayak-based census of breeding pairs of endangered Southwestern WIFL along a 71km stretch of the Gila River in AZ

Biological Field Technician *1/11-3/11*
Rocky Mountain Bird Observatory, Fort Collins, CO
Surveying for wintering bird species in Chihuahuan desert grasslands in West Texas
Performed quantitative and estimated prairie vegetation assessments

Observer / Trapping Assistant *08/10-10/10*
HawkWatch International, Salt Lake City, UT
Trapped, banded, and processed raptors at on-site trapping blind
Counted migrating raptors at Bonney Butte in the Oregon Cascades

Biological Field Technician *05/10-08/10*
United States Geological Survey, Boise, ID
Conducted all-species point counts and vegetation surveys in aspen stands of the Ruby Mountains, Nevada
Intensive quantitative habitat assessments, including keying out forbs and woody plants

Nest Searcher and Point Counter *3/10-5/10*
Point Reyes Bird Observatory, Point Reyes Station, CA
All-species nest-searching and vegetation surveys in Sonoran desert of the lower Colorado drainage

Biological Field Technician *1/10-3/10*
Rocky Mountain Bird Observatory, Fort Collins, CO
Wintering bird and vegetation surveys in desert grasslands around Janos, MX

Biological Field Technician *3/09-7/09*
United States Geological Survey, Henderson, NV
Conducted area searches for bird species along the flood plain of the Virgin River in NV
Plotted out breeding territories using spot-mapping techniques

Backcountry Point Count Surveyor *5/08-8/08*
Institute for Bird Populations, Point Reyes Station, CA
Conducted bird point counts in the backcountry of Mt. Rainier & Olympic Nat'l Parks
Performed detailed habitat assessments, including tree/shrub identification and size estimations

Education

Portland State University, *Portland, Oregon*
Two semesters (2011-2012) post-Baccalaureate coursework in Environmental Chemistry, Geographic Information Systems, Biogeography

Brown University, *Providence, Rhode Island*
BA, Comparative Literature, May 2003

Skills

Well-developed visual and aural ID skills for birds of the arid West
Expertise in point count and distance sampling techniques
Monitoring threatened and endangered species
Extensive experience in nest-searching and nest-monitoring
Proficient map-reading and orienteering abilities, demonstrated proficiency with GPS units
Experience operating and safety training for 4WD vehicles, ATVs, and small watercraft
Ability to key out vascular plant species and quantify habitat characteristics
Fundamentals of mapmaking and analysis on ESRI ArcMap 10
CPR/AED/First Aid certified by the American Red Cross

References

Chris McCreedy, Point Reyes Bird Observatory
Terrestrial Program Biologist
cmccreedy@prbo.org (415)717-7426

Allen Graber, SWCA Environmental Consultants
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Chris White, Rocky Mountain Bird Observatory
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chris_white@rmbo.org (970)482-1707 ext. 24

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PALEN SOLAR ELECTRIC GENERATING SYSTEM AMENDMENT

Docket No. 09-AFC-07C
PROOF OF SERVICE
(Revised 07/09/2013)

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*Indicates change

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PARTICIPANTS (LISTED FOR
CONVENIENCE ONLY):
After docketing, the Docket Unit will provide a copy to the persons listed below. Do not send copies of documents to these persons unless specifically directed to do so.

KAREN DOUGLAS
Commissioner and Presiding Member

DAVID HOCHSCHILD
Commissioner and Associate Member

Kenneth Celli
Hearing Adviser

Galen Lemei
Adviser to Presiding Member

Jennifer Nelson
Adviser to Presiding Member

Gabriel D. Taylor
Adviser to Associate Member

Eileen Allen
Commissioners' Technical
Adviser for Facility Siting

DECLARATION OF SERVICE

I, Marie Fleming declare that on July 23, 2013, I served and filed copies of the attached PALEN SOLAR HOLDINGS, LLC'S SPRING 2013 AVIAN SURVEY RESULTS, dated July, 2013. This document is accompanied by the most recent Proof of Service, which I copied from the web page for this project at: http://www.energy.ca.gov/sitingcases/palen/compliance/.

The document has been sent to the other persons on the Service List above in the following manner:

(*Check one*)

For service to all other parties and filing with the Docket Unit at the Energy Commission:

____ I e-mailed the document to all e-mail addresses on the Service List above and personally delivered it or deposited it in the U.S. mail with first class postage to those parties noted above as "hard copy required";

OR

__X__ Instead of e-mailing the document, I personally delivered it or deposited it in the U.S. mail with first class postage to all of the persons on the Service List for whom a mailing address is given.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct, and that I am over the age of 18 years.

Dated: July 23, 2013

Marie Fleming