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## IVANPAH SOLAR ELECTRIC GENERATING SYSTEM AVIAN & BAT MONITORING PLAN

2016 – 2017 Annual Report



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## Executive Summary

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This annual report represents a summary of the avian and bat monitoring surveys conducted at the Ivanpah Solar Electric Generating System facility (referred to in this report as "Ivanpah" or "Project"), from December 16, 2016 to December 15, 2017. This is the fourth annual report, which documents the survey effort and results of the fourth year of avian and bat monitoring conducted in accordance with the Project's Avian & Bat Monitoring and Management Plan (Plan) as revised November 2015.

Per the revised Plan (2015), potential flux effects and collisions were investigated by surveying 100 percent of the tower area in all three units in all seasons, and 20 percent of Unit 2 heliostat field (240 acres) during the winter and spring season. The "tower area" consists of the power block and inner high-density (HD) heliostats surrounding each of the three power blocks, covering approximately 154 acres; and 2) the "heliostat area" for all three units consists of the inner and outer heliostat segments outside of the inner HD heliostats, covering approximately 2,991 acres. Surveys of the Unit 2 heliostat field were discontinued following the spring season, since the Plan objectives had been met for this area during the first three and a half years of monitoring.

All bird and bat fatalities and injuries, referred to as "detections" in this report, including those found incidentally and during standardized facility searches, were documented and categorized as singed, collision, other project causes, or unknown based on examination with a binocular microscope and evidence collected from the location of the detection. During the period 16 December 2016 – 15 December 2017, 15 bat detections and 499 avian detections (which included 11 injured birds) were found. Of the 499 avian detections, 480 were discovered in the tower area, 13 were discovered in the heliostat area during the winter and spring seasons, and six were discovered on other project lands.

Following the approach approved for the Year 2 and Year 3 annual reports, this annual report provides fatality estimates using biologically informed monitoring seasons that correspond to observations and statistical analysis rather than solely to previously determined dates and season durations. While the winter (2016), spring (2017), summer (2017) and fall (2017) monitoring surveys and reports followed the seasonal schedules outlined in the Plan, close inspection of the respective fall, winter, spring and summer monitoring data from 2014 - 2015 demonstrated a longer fall migratory season in fall 2014 (i.e., ending on December 14, 2014), resulting in a winter 2014 monitoring season correspondingly beginning on December 15, 2015. Similarly, fall 2016 ended on December 15, 2016 and winter 2016 started on December 16, 2016.

Per the specifications of the Plan, avian detections were categorized by facility structure and cause. These avian fatality search results, along with searcher efficiency and carcass removal rates from trials conducted onsite, were input into a fatality estimator model (Huso 2010) to provide an estimate of the fatalities for the tower area.

Using the fatality estimator model, during the period 16 December 2016 – 15 December 2017, there were an estimated 1414 fatalities (71%) from known causes and 589 fatalities (29%) from unknown causes in the tower area. As the heliostat area monitoring was discontinued after the spring season, no facility wide

estimate is provided. However, based on the number of detections and analysis of impacts to the national, regional and local populations, as relevant, the effect of the Project is “low” as defined in the Plan.

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# Section 1.0 Introduction

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## 1.1 Project Background

The Ivanpah Solar Electric Generating System (referred to in this report as "Ivanpah" or "Project") consists of three solar power electrical generating facilities (Units 1, 2, and 3) with a combined net capacity of 377 megawatts. Each unit includes a central power tower with an air cooled condenser (ACC) and associated electrical generating equipment, surrounded by a heliostat array that reflects sunlight to a boiler at the top of the power tower. Ivanpah is located on approximately 1,457 hectares (3,600 acres) of Bureau of Land Management (BLM) land west of Interstate 15 near the town of Nipton in San Bernardino County, California (Figure 1). Construction was initiated in 2010 and completed in late 2013.

## 1.2 Monitoring Plan Overview and Goals

An Avian & Bat Monitoring and Management Plan (Plan) was prepared by the Project proponents in collaboration with the U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Wildlife (CDFW), California Energy Commission (CEC), and Bureau of Land Management (BLM) to guide comprehensive monitoring of impacts to birds and bats associated with the operation of the Project. Revision 12 of the Plan (2013) was accepted by the agencies in November 2013 and required two years of monitoring, which were completed at the end of October 20, 2015. As part of the Plan, a Technical Advisory Committee (TAC) with representative from the agencies and the Project was formed to guide implementation of the Plan. The TAC determined that the goals of the Plan (2013) were met, and in November 2015, the TAC-approved Revision 13 to the Plan (2015) to provide collision and flux mortality estimates. Revision 13 of the Plan (2015) reflects reduced monitoring requirements (i.e., heliostat areas for Units 1 and 3, the Unit 3 collector line, offsite control transects, and fenceline monitoring were removed from the monitoring for the third year) as informed by the first two years of intensive monitoring. Upon reviewing the third year of monitoring, the TAC determined that surveys in the heliostat area for Unit 2 met the Plan objectives and were removed after the second quarter (spring) of the fourth year, leaving fatality monitoring in the tower areas for the final two quarters of year four. Thus, the Unit 2 heliostat area was not monitored during the 2017 summer and fall seasons.

Specifically, the Plan (2015) details the surveys, data analysis and reporting processes that will be implemented by Ivanpah in collaboration with the USFWS, CDFW, CEC, and BLM and provides the following goals and objectives as excerpted from the Plan (2015):

### Plan Goals

1. Provide Collision Mortality Estimates: Estimates of avian mortality from collision will be calculated from data obtained by monitoring and identifying avian mortality and injury associated with facility structure collisions.
2. Provide Solar Flux Mortality Estimates: Estimates of avian mortality from flux effects will be calculated from data obtained by monitoring and identifying avian mortality and injury associated with solar flux generated by the facility.

3. Provide a Framework for Management and Response to Risks: The designation and description of the functioning of the TAC provides a management and decision framework for the identification and implementation of potential adaptive management measures.

### **Plan Objectives**

The first two years of monitoring documented that the mortality associated with the perimeter fences, transmission lines, and offsite transects was less than 5 detections a season, and patterns associated with avian use were consistent over the first two years of monitoring. These elements of the Plan were therefore subsequently discontinued per TAC approval. Similarly, the heliostat monitoring showed consistent results over the first three years of monitoring and met the Plan objectives. Therefore, per TAC approval, the heliostat area monitoring was discontinued after 3.5 years. As revised, the Plan has the following objectives:

1. Estimate collision-related avian mortality and injury with the following facility structures (Figure 2), using empirical data to calculate facility-wide mortality and injury rates where appropriate:
  - a. Power block
  - b. Heliostats (following the Spring 2017 survey, inner HD heliostats only surveyed as part of tower area)
2. Estimate flux-related avian mortality and injury using empirical data to calculate facility-wide mortality and injury rates.
3. Document patterns of collision or flux-related mortality and injury associated with species, age/sex, season, weather, and visibility.
4. Document spatial patterns associated with collision- or flux-related mortality and injury.
5. Provide quantitative information for developing and implementing adaptive management responses commensurate with identified impacts.

As approved by the TAC, the revised Plan (2015) continues to: 1) satisfy the BLM Right-of-Way (ROW) Permit requirement that the Project proponent develop an avian plan as well as a Migratory Bird Treaty Act (MBTA) Conservation Agreement; 2) satisfy the requirements for the Avian & Bat Monitoring and Management Plan approved by the CEC for Ivanpah per CEC Condition of Certification BIO-21; and 3) achieve the avian and bat protection objectives of the USFWS in relation to the MBTA, Bald and Golden Eagle Protection Act (Eagle Act), and Federal Endangered Species Act (ESA), including preparing written records of the actions that have been taken to avoid, minimize, and compensate for potential adverse impacts to avian and bat species. By developing a proactive management plan in close consultation with the USFWS and other relevant state and federal agencies, Project proponents can effectively comply with the intent of the federal MBTA, Eagle Act, ESA, and relevant state regulations (USFWS 2012).

## **1.3 Purpose of This Report**

This report provides a summary of the detections (by cause and location), and the modeling inputs used to calculate an annual fatality estimate for known and unknown cause according to the biologically informed seasons (16 December 2016 – 15 December 2017) as described in the 2014 – 2015 Annual Report (WEST 2016), and further described in Section 2.1.5. Biologically informed seasons are defined in this report as winter (15 December 2016 – 20 March 2017), spring (21 March – 25 May 2017), summer (26 May – 17 August 2017), and fall (18 August – 15 December 2017), and are collectively referred to as

the 2016 – 2017 monitoring year or year 4 throughout this report. Fatality estimates for each season as defined in the Plan (2015) are provided in each quarterly report and are not re-estimated in this report. This report meets the requirements of CEC Condition of Certification BIO-21.

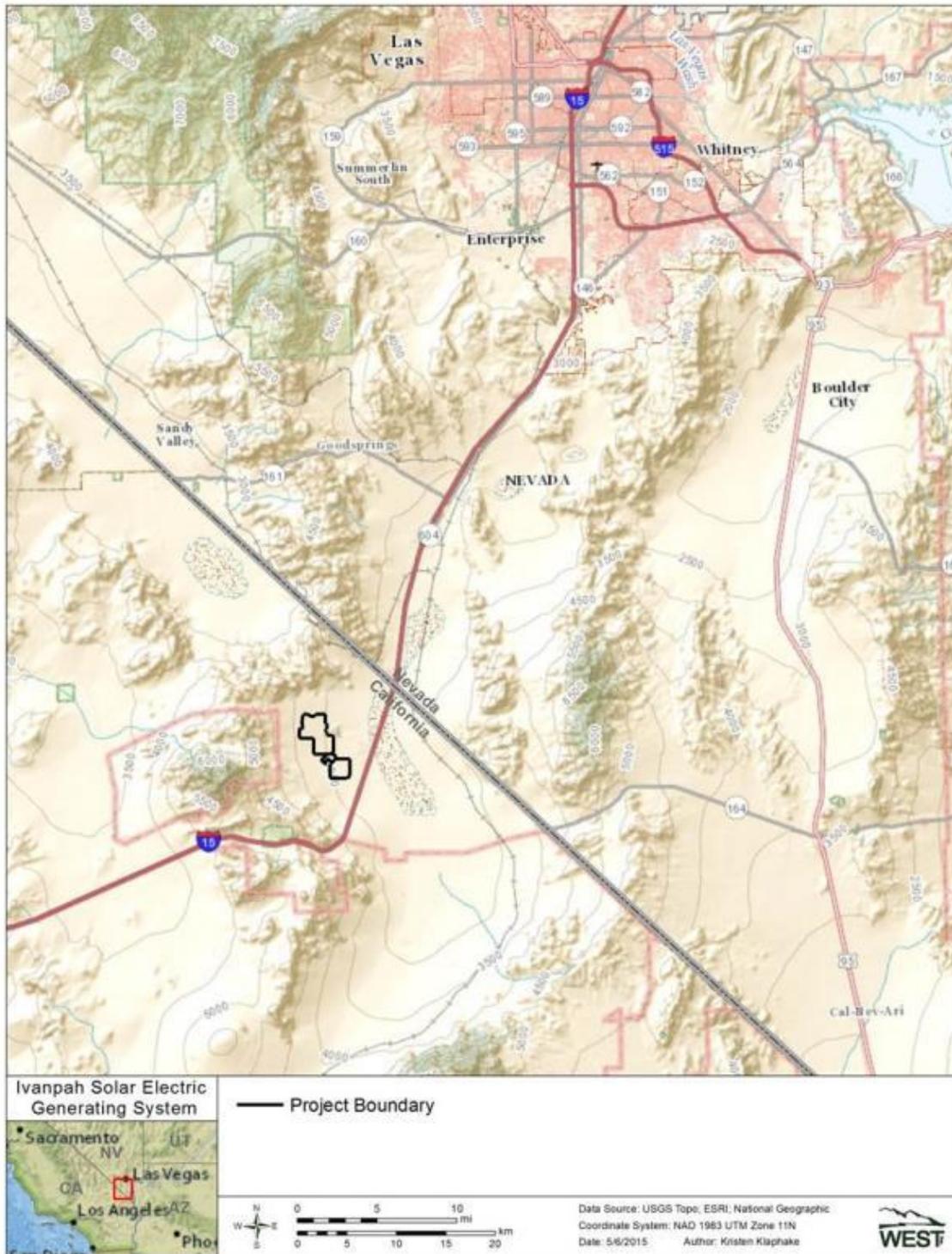


Figure 1. Ivanpah Vicinity Map.

## Section 2.0 Methods

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The Plan (2015) describes the methods by which monitoring and certain analyses, including compilation of the overall fatality estimate, will occur. Below is an abridged description of the 2015 methods and subsequent modifications (Unit 2 heliostat area and bias trials in Unit 2 discontinued after the 2017 spring season) approved by the TAC.

### 2.1 Facility Monitoring

This section describes areas surveyed, the frequency and timing of the searches, and the methods by which standardized searches were conducted to identify dead/injured birds and bats (hereafter detections) at the Project. This section also describes the methods for conducting carcass removal and searcher efficiency trials; how data were reported and analyzed for incidental detections; and the methods for producing fatality estimates for the Project.

#### 2.1.1 Standardized Searches

##### 2.1.1.1 Areas Surveyed

Per the Plan (2015), monitoring was conducted in the “tower area” and a sample of the “heliostat area”. The tower area is defined as the power block (the area consisting of the tower, the ACC unit, the associated control building, and immediately adjacent areas defined by the ring road and berm/slopes surrounding these facilities) and inner high-density (HD) heliostats surrounding each power block. The heliostat area is defined as the inner and outer heliostat segments outside of the inner HD heliostats. For year 3, 100% of the tower area at each unit was surveyed and 20% of the Unit 2 heliostat area (8% of the total heliostat area) was surveyed during the winter and spring seasons. Table 1a provides the acreage searched within each of the survey areas, as well as the percent of the facility comprised by these search areas. Overall, approximately 12.9% of the Project was searched during the 2016 – 2017 winter and 2017 spring seasons; 4.8% was searched during the 2017 summer and fall seasons (Table 1a, Figure 2).

To ensure a balanced distribution of heliostat field survey plots, Unit 2 was divided into inner and outer heliostat fields, and approximately 20% of each sub-area was randomly selected for monitoring. Arc plots used for monitoring in Unit 2 were the same as previous years. This stratified random sampling design ensures that survey plots will not be clustered or biased in any distance or direction from the tower. The Unit 2 heliostat area was sampled with this methodology in 2016 – 2017 winter and 2017 spring seasons.

**Table 1a. Monitoring Areas.**

Area	Facility Locations Included	Acreage Searched	Percent of Facility
Tower Area	ACC, Power Block, Inner HD	154	4.80%
Heliostat Area*	Unit 2 Inner and Outer Heliostat Segments	240	8.09%
Total (2016-2017 winter and spring seasons)		394	12.89%

\*Surveyed in 2016 - 2017 winter and 2017 spring seasons only.

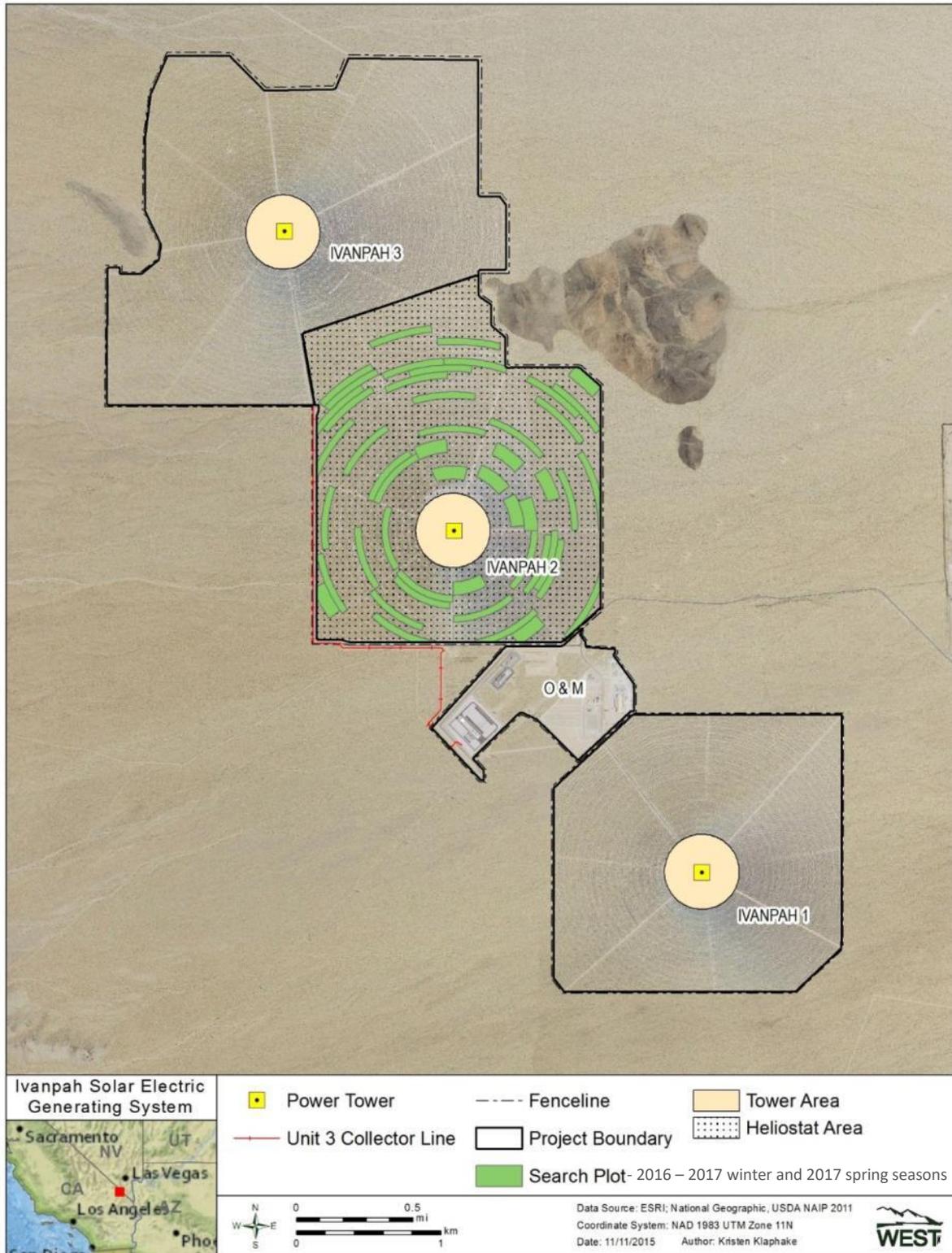


Figure 2. Ivanpah Search Areas.

### **2.1.1.2 Search Frequency and Timing**

Standardized searches occurred at each unit on a 21-day interval through the 2016 – 2017 winter season and the 2017 summer season (Plan 2015). Standardized search frequency was increased in spring and fall 2017, occurring at each unit on a 7-day interval to accommodate an increase in bird activity due to migration (Plan 2015). Due to the longer biologically informed fall season compared to the fall season defined in the Plan (2015), the biologically informed winter season includes searches at a 7-day and 21-day interval. Variation in search interval was anticipated to occur due to the transition from a 21-day search interval to a 7-day search interval between seasons of differing length.

### **2.1.1.3 Search Methods**

Biologists performed surveys in the tower area, and plots in the heliostat area. Standardized walking surveys for fatalities were performed by biologists approved by CEC and BLM, in accordance with the methods outlined in the Plan (2015). In the heliostat area, a pair of biologists walked a total of four transects oriented longitudinally along the complete length of each arc-plot, with the ring roads serving as the outer boundaries of each arc plot. While walking each transect, biologists walked a narrow search section approximately 10 meters (m) wide. Within the power block, biologists walked through and around the power tower and ACC unit looking for dead and injured birds and bats, and walked transects through the gravel surrounding the structures to achieve 100% coverage within physically accessible areas. Within the inner HD heliostats surrounding each power block, biologists walked transects to ensure 100% coverage. Thus, the tower area, comprising the area within 260 m of each tower, was completely covered during each survey, excepting any areas that were physically inaccessible or unsafe to survey. Inaccessible areas were, to the extent possible, scanned using binoculars.

**Carcass and Feather Spot Examination.** Every carcass and feather spot was examined visually by a biologist approved by the CEC and BLM for evidence of singeing or collision. Singeing to feathers can occur when a bird enters the flux around the power tower. When no obvious evidence of singeing or collision was evident to the naked eye, the carcass or feather spot was then examined using an AmScope SE306R-AZ-E2 20X-40X-80X Digital Binocular Stereo Microscope. When singed detections involving carcasses (as opposed to only feather spots) were found, the singeing was assigned a grade based on Kagan et al. (2014), as follows.

- Grade 1 – curling of less than 50% of the flight feathers
- Grade 2 – curling of 50% or more of the flight feathers
- Grade 3 – curling and visible charring of contour feathers

Kagan et al. (2014) originally found no singeing of contour feathers in the absence of curling of 50% or more of the flight feathers. In contrast, we have found singeing of contour feathers with curling of less than 50% of flight feathers, and in the absence of curling or singeing of any flight feathers. We therefore assigned grade 3 independent of grades 1 and 2.

When a carcass was detected, biologists looked for evidence of collision, including obvious physical trauma or detection adjacent to a heliostat with a bird-strike imprint, smudge mark, and/or feathers on or

near the surface of the mirror. If there was no evidence of collision or singeing (e.g., charring, curling, or melting of feathers), as confirmed through microscopic examination, the cause of injury or fatality was listed as “unknown”.

For the purpose of these surveys, feather spots were considered detections when they met the following definition:

At least two or more primary flight feathers, 5 or more tail feathers, or 10 or more feathers of any type concentrated together in an area 1-m<sup>2</sup> or smaller (Smallwood 2007), without any bone, beak, or significant amounts of flesh or skin.

In some cases, an individual detection was broken up into aggregations of feathers that would meet the criteria for a feather spot, but with pieces of the carcass that contained bone or significant amounts of flesh or skin also present. In these cases, the detection was categorized as a partial carcass (rather than a feather spot), per the “feather spot” definition above.

### **2.1.2 Carcass Persistence Trials**

Carcass persistence trials were performed throughout the 2016 – 2017 monitoring year, and a total of 56 small bird carcass trials were conducted. The TAC approved discontinuing large bird carcass trials at the conclusion of the 2015 summer season due to the consistency of large bird persistence times collected over the previous seasons. In response to the previous TAC request of increased sample size, the number of small bird trials was increased relative to the 2013 – 2014 winter monitoring season. Non-native house sparrows (*Passer domesticus*) and quail (*Coturnix sp.*) were used for small carcass trials conducted during the 2016 – 2017 monitoring year. A camera was placed at each carcass to record the time of scavenging and the scavenging species.

The facility contains vegetated and unvegetated areas that could affect the ability to detect a carcass or the amount of time a carcass persists until it is scavenged. The tower area (power block and inner HD heliostats), where most singed detections occur, is unvegetated; all other areas are considered vegetated. In order to examine carcass persistence times for vegetated and unvegetated areas, carcasses were distributed through the facility, with 43 carcasses placed in the unvegetated tower area, and 13 carcasses placed in the vegetated heliostat area. When monitoring was discontinued in the heliostat area in 2017, carcass persistence trials were similarly discontinued in that area.

### **2.1.3 Searcher Efficiency Trials**

A total of 220 searcher efficiency trials (77 small birds, 71 large birds, and 72 feather spots) were conducted during the 2016 – 2017 monitoring year. Trials were placed in the tower areas of all three units; no trials were placed in the ACC building since detection probability is assumed to be 100% in this area of the power block. Carcasses and feather spots were placed in various vegetation heights and in areas that had different soil and vegetation colors and values to represent the range of conditions under which searches occurred during the year. Trial birds consisted of rock pigeons (*Columba livia*), house sparrows, and house sparrows (*Passer domesticus*), the latter of which were detections that were in good condition and repurposed for searcher efficiency trials. Each trial carcass was placed by a Designated

Biologist (a biologist responsible for implementing the conditions of certification) prior to a scheduled search without knowledge of the searchers. For trial carcasses that were not detected by searchers, the Designated Biologist returned to the trial location to see if the trial carcass was still available to be found. If the trial carcass was absent, it was assumed to have been removed prior to the search, and thus not available to be detected.

Of the 220 trial carcasses placed, 193 (62 small carcasses, 62 large carcasses, and 69 feather spots) were available to be found; 15 small carcasses, nine large carcasses, and 3 feather spots were removed (likely scavenged) from the trial location before searchers had an opportunity to find them.

#### **2.1.4 Incidental Reporting**

Some detections were discovered outside standardized search areas or were within search areas but not during standardized searches. Detections at locations not searched under the Plan (2015) such as the fenceline are considered incidental detections for this report. These detections were reported in accordance with the facility's Wildlife Incident Reporting System (described in Section 3.4 of the Plan) and were considered “incidental” detections. Data on these incidental detections were reported in the SPUT permit database. As described in Section 2.1.5, incidental data is included in the fatality estimates when detections were found in areas covered during standardized surveys (e.g., tower area) during the search interval. Incidental detections from outside the survey areas were not included in the fatality estimates as discussed in Section 2.1.5; however, all detections regardless of the method or source of detection are reported in the SPUT permit database.

#### **2.1.5 Fatality Estimator**

Fatality rate estimation is a complex task due to several variables inherent to every fatality monitoring study. Carcasses may persist for variable amounts of time due to local scavenger activity or environmental conditions leading to carcass degradation over time. Carcasses and feather spots are also detected with varying levels of success based on carcass characteristics and ground cover. For these reasons, it is generally inappropriate to draw conclusions based on the raw number of fatalities alone. The desire to estimate fatalities given these variables has driven the development of several statistical methods for estimating fatalities (e.g., Smallwood 2007, Huso 2010, Korner-Nievergelt 2011). All of these fatality estimation methods share a similar underlying model. Generally, the fatality estimation for a given site may be written as:

$$F=C/rp,$$

where  $F$  is the total number of fatalities,  $C$  is the number fatalities detected and included in fatality estimation,  $r$  is the probability a carcass is unscavenged and available to be found at the end of the search interval, and  $p$  is the probability of detecting a carcass (Huso 2010).

The bias correction factors  $r$  and  $p$  are estimated by covariates that may influence the detectability and persistence of each carcass, such as carcass size, presence of vegetation, and stage of decay or scavenging (i.e., feather spot versus carcass). For this study, the Huso estimator was used to correct for detection and scavenging bias; the estimator was demonstrated to perform well under a variety of conditions (Huso 2010). The Huso model was developed in the context of estimating fatalities for post-construction fatality

studies at wind energy facilities; however, the Huso estimator is suitable for other sources of anthropogenic avian mortality, including power lines and utility scale solar facilities (Huso 2010).

All fatality estimates were calculated using the Huso estimator, and 90% confidence intervals were calculated for each estimate using bootstrapping (Manly 1997). Bootstrapping is a computer simulation technique that is useful for calculating variances, and confidence intervals for complicated test statistics. A total of 1,000 bootstrap replicates were used. The lower 5<sup>th</sup> and upper 95<sup>th</sup> percentiles of the 1,000 bootstrap estimates provide estimates of the lower limit and upper limit of an approximate 90% confidence interval on all estimates.

**Estimating Carcass Persistence Times.** Measurement of carcass persistence time is often subject to censoring. In this context, censoring refers to the fact that a value (e.g., days a carcass is present before being removed) may not be known exactly, but within a finite range. For example, suppose a carcass was checked on day 7 and was present, and was checked again on day 10, but was found to be missing. The exact time until removal is unknown; however, it is known that the carcass was available to be found for between 7 and 10 days. This carcass would be considered “interval censored”. Similarly, if a carcass lasts the entire six-week trial period, that carcass is “right censored”—we know the carcass lasted at least six weeks, but it could have persisted longer. Due to the fact that camera traps (e.g., cameras that automatically document activity at the trial carcass) were used for carcass removal trials, the majority of scavenging times can be known precisely, and data are not censored. However, when cameras fail to record the moment of scavenging, trials are treated as interval censored between the last time the carcass was visible on the camera, and the earliest time at which it was known to be removed.

Survival regressions models are well-suited to accommodate censored carcass persistence data and are typically used to generate the average probability of persistence for fatality estimation (Huso et. al 2012). There are four commonly used distributions implemented in the survival models used to estimate the value of  $r$ : exponential, Weibull, loglogistic, and lognormal. These four distributions exhibit varying degrees of flexibility in order to model a wide variety of removal time distributions. Akaike’s Information Criterion adjusted for sample size (AICc; Akaike 1973) was used to rank the fit of each survival model fit to carcass removal data. The exact time of death for detected fatalities is usually unknown, so the probability of persistence cannot be calculated exactly for each carcass; however, it can be estimated from the selected survival model and bootstrapped to obtain a range of estimates of  $r$  for each carcass.

**Estimation and Model Selection for Searcher Efficiency.** Searcher efficiency, or the proportion of carcasses detected,  $p$ , is represented most simply by the following equation:

$$p = \frac{\text{Number of Trial Carcass Observed}}{\text{Number of Trial Carcasses Available}}$$

Searcher efficiency trials were conducted in all seasons. To evaluate various hypotheses regarding differences in carcass detectability among Project areas, seasons, and/or carcass size, logistic regression models were fit to searcher efficiency data and corrected Akaike’s Information Criteria (AICc) was used to compare models. The data for this analysis included all human searcher efficiency trials of carcasses from the beginning of trials in the winter 2013 – 2014 season through the 2016 – 2017 monitoring year.

### **Detection Bias Modeling Factors with Historical Data**

Consistent with all previous seasonal and annual reports, detection bias modeling was performed using all trial data collected to date in *any* Project area. Using all historical bias trial data provides a larger, more robust data set resulting in more precise estimates of avian mortality. Although monitoring was not conducted in the heliostat area during the 2017 summer and fall seasons, Project area was included as a covariate in the model selection process for searcher efficiency and carcass persistence bias based on vegetated (heliostat area) versus non vegetated (tower area). See previous seasonal and annual reports for additional details.

The Project area was previously defined using two categories to reflect the suspected, potential differences in searcher efficiency and/or carcass persistence due to differences in vegetation cover: the tower area, which consists of the power block and the inner HD heliostats, and other areas, which consists of all other Project areas not included in the tower area; see previous seasonal and annual reports for additional details.

**Fatality Estimates.** Estimates for the number of detections in the tower area components (i.e., the power block and inner HD heliostats) are reported combined, because 100% of these areas were searched. The ACC buildings are only marginally accessible to scavengers from the outside; therefore, they act primarily as a closed system with a scavenging rate that approaches zero. Furthermore, carcasses are, generally, visible against the industrial backgrounds. Thus, the fatalities found in the ACC were not adjusted using the Huso estimator; rather, raw counts of ACC detections were added to fatality estimates for the power block. All detections within the ACC buildings are considered facility related, whether or not they showed evidence of singeing or collision.

Within the power block, during the 2016 – 2017 monitoring year, incidental detections accounted for 19.5% of the detections recorded. Thus, as previously modeled, incidentals found within the power block were included in estimates, but treated differently from other fatalities. To reflect the high human activity in the power block—and frequent observation of the areas within the power block—the search interval for these detections was set to one day, consistent with all previous seasonal and annual reports (Table 1b).

In previous seasons, incidental detections found outside of the power block but within standardized search areas were partially processed in the field and left in place to give searchers the opportunity to discover the carcass on the next scheduled search. As approved by the TAC, this method was discontinued in the 2015 fall season to prevent the scenario where an incidental detection is recorded, left in place, but scavenged before the next standard search and no carcass is associated with the data. Beginning in the 2015 fall season and continuing to the present, incidental detections found outside of the power block, but within standardized search areas, were removed from field and included in fatality estimates under the conservative assumption that the search interval was the time between the last search of the area and the time of incidental discovery (Table 1b).

**Table 1b. Treatment of Incidental Detections by Location**

Location	Search Interval	Included in Analysis?
Power Block	1 Day	Yes, if carcass age is less than 24 hours
All Other Standardized Search Areas	Calculated days between date of detection and date of previous standard search in that location	Yes, if carcass age is less than calculated search interval

All fatality estimators have limitations, particularly when fatality counts are low. In particular, when detections are fewer than five, regardless of survey effort, estimates and confidence intervals can be unstable and must be interpreted with caution (Korner-Nievergelt et. al 2011). Rather than report estimates with little inferential value, no estimates were provided for combinations of covariates (e.g. size, location, cause) resulting in five or fewer detections.

The fatality estimator accounts for imperfect detection probability by using bias trials to estimate searcher efficiency. The Huso estimator is constructed under the assumption that searchers have a single opportunity to discover a carcass. Therefore, if a carcass is missed on the first search it was available and then found on the next search, it will effectively be over-counted. The method typically used to overcome multiple-detection-bias is to exclude any detection determined to be older than the search interval. Each detection made during the 2016 – 2017 monitoring year was evaluated for exclusion from the estimator based on the observed time since death (i.e., the length of time between an animal’s death and when the detection was discovered), and the search interval associated with that detection. For example, if a detection determined to have been on the ground for > 1 month was made in the inner HD of Unit 2, which had been searched seven days earlier, that carcass would be excluded from analysis.

Determining the age of a carcass was based on detailed qualitative analysis of every detection (carcasses and feather spots) recovered onsite. Qualitative analysis began with in situ aging analysis in the field by biologists approved by the CEC and BLM, followed by a more detailed analysis in the lab. In the field, biologists noted the presence of rigor mortis, condition of eyes and feathers, and condition of blood or viscera (if present). In the lab, each carcass was further examined and compared to photographs of decomposed test carcasses. The test carcasses were used to document decomposition over time at Ivanpah to better inform biologist of site-specific characteristics of avian decomposition that could be expected at the Project.

Decomposition test carcasses were placed in tamper-proof containers, exposed to onsite environmental conditions, and allowed to decompose. Carcasses used in decomposition tests were placed to account for variation in space (e.g. underneath fans in the ACC unit versus shaded under a heliostat) and time (e.g. ephemeral weather patterns). As the test carcasses aged, the biologists photographed and recorded the condition of body tissue and fluids, eyes, feathers, and indications of rigor mortis. All decomposition specimens were placed during the 2015 spring monitoring season.

To correctly account for searcher efficiency in the fatality estimate model, when partial carcasses are initially identified as feather spots by the observer in the field, they are modeled (in the fatality estimates) as a feather spot. In other words, the primary means of identification of the detection (feather spot, small carcass, or large carcass) is the appropriate classification to utilize in the modeled estimates. The primary

identification approach is appropriate since different searcher efficiency rates are estimated for feather spots as opposed to carcasses. Because searcher efficiency is an important component of the fatality estimator, what the surveyors detect first (i.e., feather spot versus a complete or partial carcass) influences how that detection should be included in the model. Such detections are noted in Appendix A as “partial carcass + feather spot” in the “Description of Carcass/Injury” column.

**Biologically Informed Seasons.** In an effort to address the annual variation in migration seasons for non-resident birds, a step-wise, data-driven process was used to define biologically informed seasons in association with the 2014 – 2015 Annual Report. As described in that report, all bird species found as detections at Ivanpah were categorized as resident or non-resident. Resident species were defined as those that occur year round, such as a black-throated sparrow. These species would be expected to have a more similar fatality risk profile year round than non-resident species. Non-resident species were defined as either those that are transient (e.g., passing through the area during migration such as yellow-rumped warbler) or seasonal resident (e.g., those species that migrate into the areas to overwinter or breed on an annual basis such as tree swallow) and therefore would be expected to have periodic risk. Based on the dates of non-resident species observed in the Year 1 data, a decision was made to use December 15, as representing the end of the fall migration for the purposes of comparing seasonal fatality data among years.

## 2.2 Deterrence Measures

### 2.2.1 Avian Measures

Ivanpah commenced an investigation of the use of various deterrence measures to reduce avian mortality at the facility in 2013. These initial investigations combined with the results of the monitoring conducted during 2014 resulted in a list of potential deterrence measures for adaptive management. As monitoring has identified patterns of detections, additional measures have been identified, tested and deployed as best management practices.

Several other deterrence measures have been tested and implemented for birds at Ivanpah. Specifically, new ground-level LED lighting and spikes were installed at Unit 1 on 5 February 2015. As approved by the TAC, after initial testing, a chemosensory deterrence measure commercially known as BirdBuffer, was deployed on 12 October 2014 at Unit 1, and a sonic deterrence measure commercially known as BirdGard, was deployed on 13 March 2015 at Unit 1. Bird Buffer was installed at Unit 2 and Unit 3 on 29 September 2015; BirdGard was installed at Unit 2 on 25 August 2015 and Unit 3 on 31 August 2015. The chemosensory deterrence measure is hypothesized to deter resident species, since the deterrent induces a conditioned response over time, and the sonic deterrence measure is hypothesized to deter transient and migrant species, as the sounds produced by the system are thought to startle and deter subjects. Together, the combination of BirdBuffer and BirdGard systems are intended to deter avian species from entering this area associated with elevated flux mortality.

Enhancements to BirdBuffer were designed in fall 2016 and implemented in early March of 2017. Enhancements included replacing the single output device at each Unit tower with two double output devices at each Unit tower. Enhancements to BirdGard were designed in fall 2016 and implemented in

February of 2017. The enhancements included upgrading each speaker device containing 20 speakers to a new speaker device which combines 3 separate speaker towers containing 21 speakers. Each speaker tower has 7 hyper-directional speakers, for a total of 21 directional speakers targeted towards a specific path. The four independent three-speaker-devices will remain positioned on the north, east, south, and west side of each tower area.

In addition to the measures above and based on the location of greater roadrunner (*Geococcyx californianus*) detections along the fenceline and observations of hawks trapping greater roadrunner against the fence, a voluntary adaptive management measure was developed by the facility in 2016 to allow roadrunners to escape through the unit fence. The measure deployed consisted of installing egress routes through the fence with an elevated platform. The elevated platform allows the egress route to be installed without impacting the desert tortoise fencing. The shade cloth was installed to increase visibility of the egress route. The measure was initially tested at Unit 1 and monitored with a game camera. Evidence of roadrunners use was captured on camera, and this measure is now considered a best management practice and 17 additional egress routes were installed along fences of the remaining units during 2017.

### **2.2.2 Bat Measures**

Bat fatalities were detected primarily in the ACC, and as the ACC provides a roosting location, a Binary Acoustic Technology Ultrasonic Bat Deterrence was tested at Unit 3. The bat deterrence measure is not designed to elicit a fear response in bats, but is designed to interfere with the echolocation capabilities of bats. As bats navigate utilizing sonar, the method deployed “jams” the sonar signals and bats species avoid the area as a result of the inherent difficulties to navigate under these conditions. Although bats can adjust echolocation under jamming conditions, the use of broadband ultrasound requires bats to shift frequencies to avoid overlap that interferes with echolocation and therefore deters within the area subject to broadband ultrasound (Arnett, et al, 2013). As a result of the broadband ultrasonic signal and the inherent “jamming” effect, adaptation to the deterrence measure is minimal. The deterrence measure has been tested and installed at all Units, and the installation dates were as follows: 10 September 2014 at Unit 1, 23 April 2015 at Unit 2, and 23 April 2015 at Unit 3. In November 2015, an ultrasonic testing protocol was implemented to ensure proper function of all deterrence units. The testing of each deterrence device occurs monthly, with a contractor using a lift to access the space approximately 15 feet from each installed deterrence device. An ultrasonic sound detector is then used to determine if each individual deterrence device is functioning properly. A record is maintained of each inspection.

## Section 3.0 Monitoring Results

### 3.1 Summary of Avian Detections

During the 2016 – 2017 monitoring year, a total of 499 avian detections (including injured birds and incidentals) of 72 identified species and 90 identifiable species groups (Table 2) were recorded. Approximately 67% of species detected were songbirds, with 32% being other known bird types; 11% could not be identified to an appropriate level. Almost all detections occurred in the tower area (Figures 3, 4, 5, and 7), where approximately 154 acres were surveyed, representing 100% of the total tower area.

**Table 2. Number of Individual Bird Detections, by Species, 2016 – 2017 Monitoring Year.**

Species	Scientific Name	Injuries	Fatalities	Songbird?
unidentified bird (small)	<i>unidentified</i>	0	112	NA
yellow-rumped warbler	<i>Setophaga coronata</i>	0	36	Yes
yellow warbler	<i>Setophaga petechia</i>	0	27	Yes
unidentified swallow	<i>unidentified</i>	0	20	Yes
unidentified warbler	<i>unidentified</i>	0	16	Yes
tree swallow	<i>Tachycineta bicolor</i>	0	13	Yes
black-throated sparrow	<i>Amphispiza bilineata</i>	0	12	Yes
northern rough-winged swallow	<i>Stelgidopteryx serripennis</i>	0	12	Yes
mourning dove	<i>Zenaida macroura</i>	3	11	No
northern mockingbird	<i>Mimus polyglottos</i>	0	10	Yes
brown-headed cowbird	<i>Molothrus ater</i>	0	10	Yes
violet-green swallow	<i>Tachycineta thalassina</i>	0	9	Yes
unidentified sparrow	<i>unidentified</i>	0	9	Yes
house finch	<i>Haemorhous mexicanus</i>	0	8	Yes
Costa's hummingbird	<i>Calypte costae</i>	0	8	No
verdin	<i>Auriparus flaviceps</i>	0	7	Yes
Wilson's warbler	<i>Cardellina pusilla</i>	0	7	Yes
	<i>Petrochelidon</i>			
cliff swallow	<i>pyrrhonota</i>	0	7	Yes
unidentified grebe	<i>unidentified</i>	0	6	No
American pipit	<i>Anthus rubescens</i>	0	6	Yes
chipping sparrow	<i>Spizella passerina</i>	0	6	Yes
Nashville warbler	<i>Oreothlypis ruficapilla</i>	0	5	Yes
white-crowned sparrow	<i>Zonotrichia leucophrys</i>	0	5	Yes
Bullock's oriole	<i>Icterus bullockii</i>	0	4	Yes
lazuli bunting	<i>Passerina amoena</i>	1	4	Yes
western tanager	<i>Piranga ludoviciana</i>	0	4	Yes
black-tailed gnatcatcher	<i>Polioptila melanura</i>	0	4	Yes
Brewer's sparrow	<i>Spizella breweri</i>	0	4	Yes

Species	Scientific Name	Injuries	Fatalities	Songbird?
western meadowlark	<i>Sturnella neglecta</i>	0	4	Yes
American kestrel	<i>Falco sparverius</i>	0	4	No
rufous hummingbird	<i>Selasphorus rufus</i>	0	4	No
unidentified hummingbird	<i>unidentified</i>	0	4	No
unidentified woodpecker	<i>unidentified</i>	0	4	No
lesser nighthawk	<i>Chordeiles acutipennis</i>	0	3	No
eared grebe	<i>Podiceps nigricollis</i>	1	3	No
orange-crowned warbler	<i>Oreothlypis celata</i>	0	3	Yes
blue-gray gnatcatcher	<i>Polioptila caerulea</i>	0	3	Yes
ruby-crowned kinglet	<i>Regulus calendula</i>	0	3	Yes
Townsend's warbler	<i>Setophaga townsendi</i>	0	3	Yes
lesser goldfinch	<i>Spinus psaltria</i>	0	3	Yes
American robin	<i>Turdus migratorius</i>	0	3	Yes
unidentified duck	<i>unidentified</i>	0	3	No
unidentified dove	<i>Columbidae genus</i>	0	2	No
Eurasian collared-dove	<i>Streptopelia decaocto</i>	0	2	No
barn swallow	<i>Hirundo rustica</i>	0	2	Yes
loggerhead shrike	<i>Lanius ludovicianus</i>	0	2	Yes
	<i>Passerculus</i>			
Savannah sparrow	<i>sandwichensis</i>	0	2	Yes
black-throated gray warbler	<i>Setophaga nigrescens</i>	0	2	Yes
hermit warbler	<i>Setophaga occidentalis</i>	0	2	Yes
pine siskin	<i>Spinus pinus</i>	0	2	Yes
European starling	<i>Sturnus vulgaris</i>	0	2	Yes
Bewick's wren	<i>Thryomanes bewickii</i>	0	2	Yes
house wren	<i>Troglodytes aedon</i>	0	2	Yes
white-throated swift	<i>Aeronautes saxatalis</i>	0	2	No
greater roadrunner	<i>Geococcyx californianus</i>	0	1	No
rock pigeon	<i>Columba livia</i>	2	1	No
common poorwill	<i>Phalaenoptilus nuttallii</i>	0	1	No
hermit thrush	<i>Catharus guttatus</i>	0	1	Yes
Swainson's thrush	<i>Catharus ustulatus</i>	0	1	Yes
lark sparrow	<i>Chondestes grammacus</i>	0	1	Yes
horned lark	<i>Eremophila alpestris</i>	0	1	Yes
hooded oriole	<i>Icterus cucullatus</i>	0	1	Yes
sage thrasher	<i>Oreoscoptes montanus</i>	0	1	Yes
house sparrow	<i>Passer domesticus</i>	1	1	Yes
fox sparrow	<i>Passerella iliaca</i>	0	1	Yes
rose-breasted grosbeak	<i>Pheucticus ludovicianus</i>	0	1	Yes
	<i>Pheucticus</i>			
black-headed grosbeak	<i>melanocephalus</i>	0	1	Yes
green-tailed towhee	<i>Pipilo chlorurus</i>	0	1	Yes

Species	Scientific Name	Injuries	Fatalities	Songbird?
unidentified gnatcatcher	<i>Polioptila spp.</i>	0	1	Yes
vesper sparrow	<i>Pooecetes gramineus</i>	0	1	Yes
bank swallow	<i>Riparia riparia</i>	0	1	Yes
red-breasted nuthatch	<i>Sitta canadensis</i>	0	1	Yes
unidentified kingbird	<i>Tyrannus spp</i>	0	1	Yes
unidentified blackbird	<i>unidentified</i>	0	1	Yes
unidentified finch	<i>unidentified</i>	0	1	Yes
unidentified flycatcher	<i>unidentified</i>	0	1	Yes
	<i>Xanthocephalus</i>			
yellow-headed blackbird	<i>xanthocephalus</i>	0	1	Yes
Cooper's hawk	<i>Accipiter cooperii</i>	1	1	No
unidentified accipiter	<i>Accipiter spp</i>	0	1	No
unidentified shorebird	<i>unidentified</i>	0	1	No
black-chinned hummingbird	<i>Archilochus alexandri</i>	0	1	No
Anna's hummingbird	<i>Calypte anna</i>	0	1	No
Vaux's swift	<i>Chaetura vauxi</i>	0	1	No
calliope hummingbird	<i>Selasphorus calliope</i>	0	1	No
unidentified large bird	<i>unidentified</i>	0	1	No
green-winged teal	<i>Anas crecca</i>	0	1	No
blue-winged teal	<i>Anas discors</i>	0	1	No
unidentified teal	<i>Anas spp</i>	0	1	No
unidentified sapsucker	<i>Sphyrapicus spp</i>	0	1	No
Cassin's finch	<i>Haemorhous cassinii</i>	1	0	Yes
red-tailed hawk	<i>Buteo jamaicensis</i>	1	0	No
<b>Total</b>		<b>11</b>	<b>488</b>	<b>NA*</b>

\*NA – Not Applicable

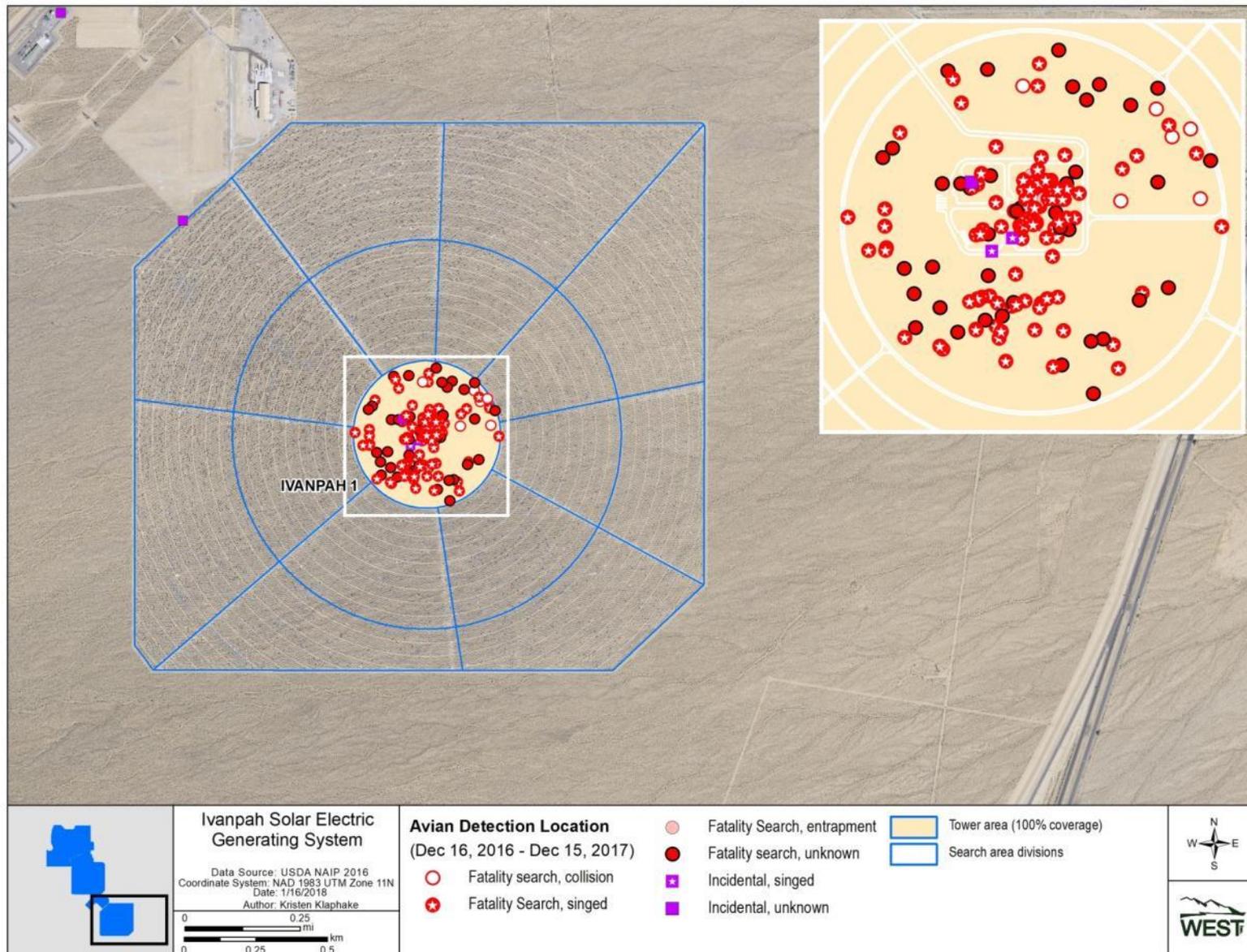


Figure 3. Ivanpah 1 Detections.

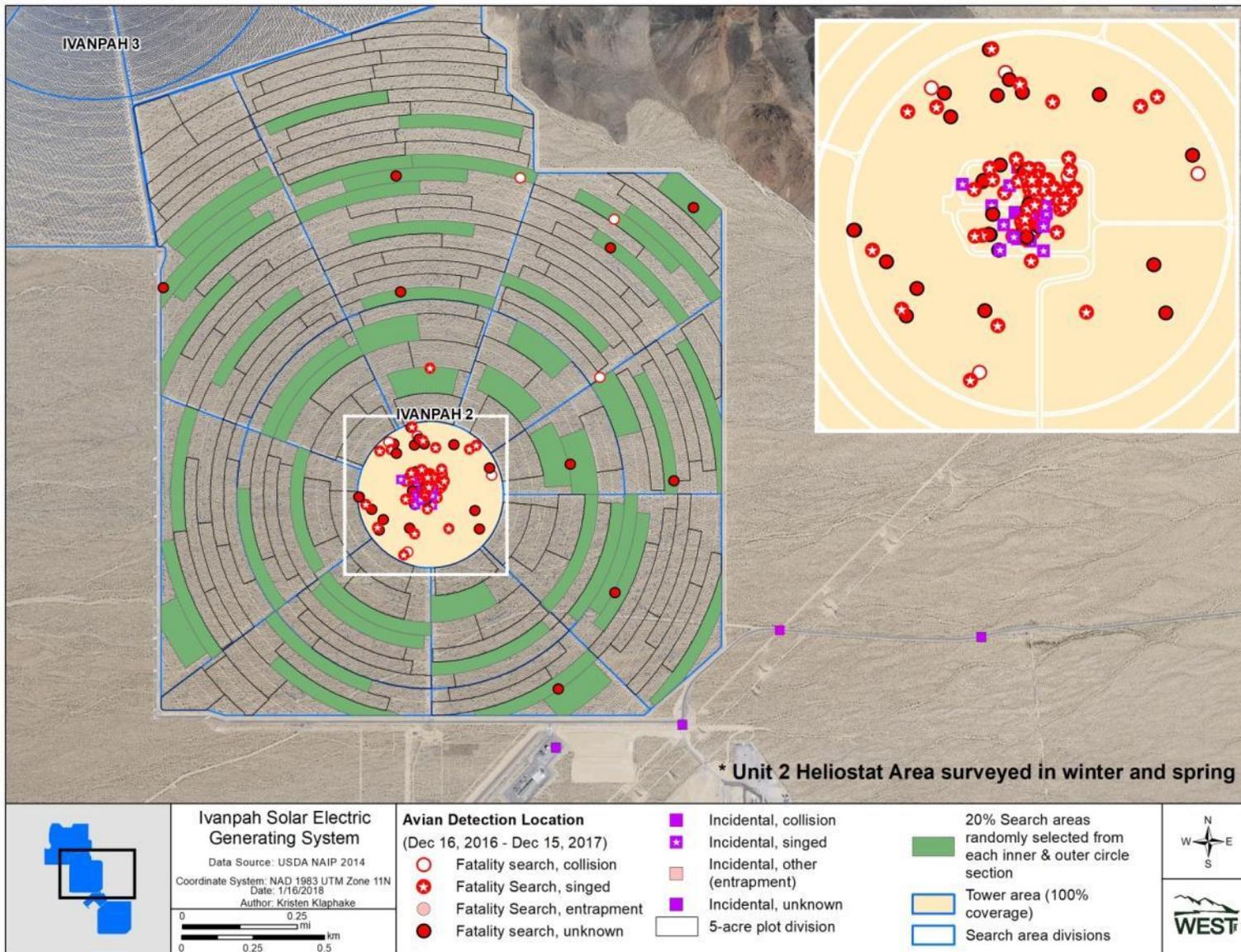


Figure 4. Ivanpah 2 Detections.

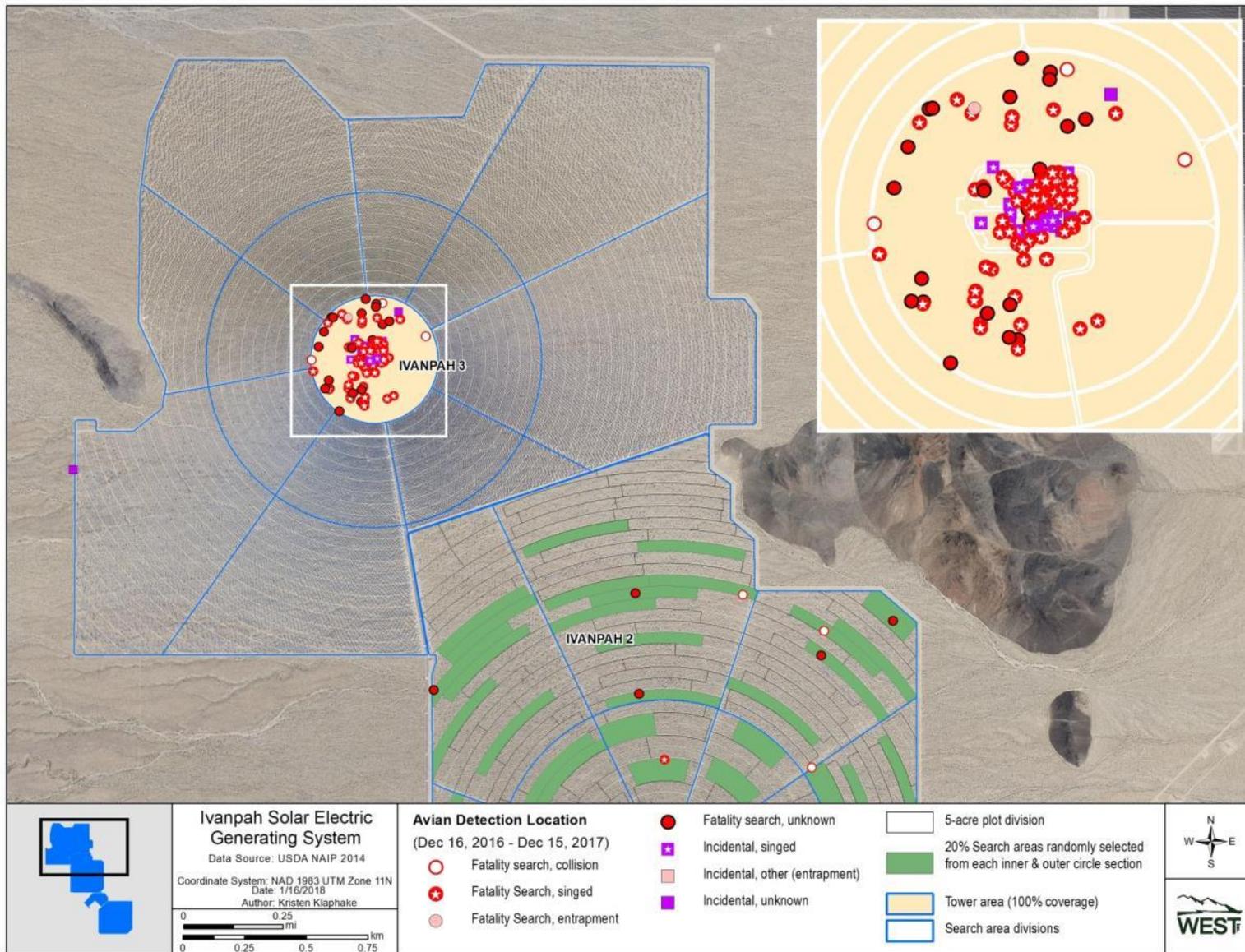


Figure 5. Ivanpah 3 Detections.

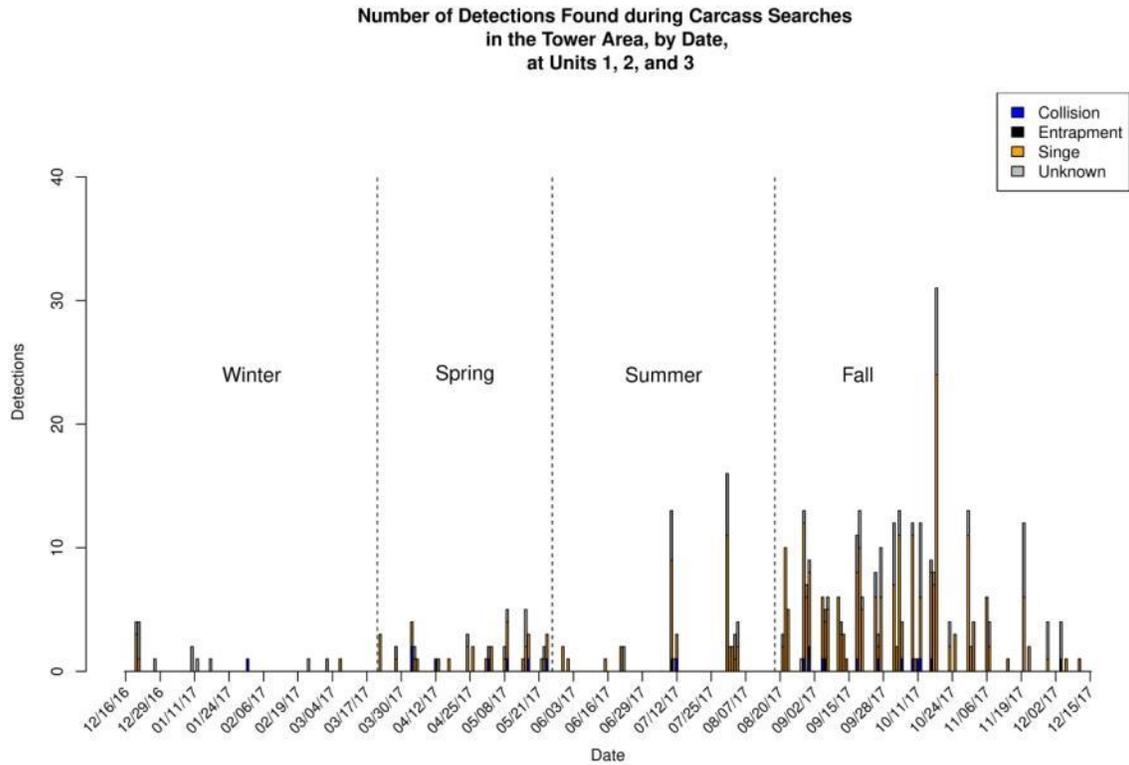
### 3.1.1 Temporal Patterns of Avian Detections

The number of detections reported per day varied during the 2016 – 2017 monitoring year. The number of detections per day represents the accumulation of detections over the search interval minus those detected incidentally and removed between searches. Thus, to better understand if search interval or the area that was searched influences the number of detections reported per day, the tower area was examined (Figure 6a). Detections per day in the tower area showed a strong seasonal pattern with detections highest in the 2017 fall season. Detections per day in the heliostat area were lower than that of the tower area and generally reflected the seasonal pattern of the tower area during the 2016 - 2017 winter and 2017 spring seasons when Unit 2 heliostat area was monitored.

The number of detections reported per day was low throughout the 2017 spring season with limited peaks though early May. BirdCast reported local light to moderate movements of migrants in the Desert Southwest throughout the spring season except for moderate to locally heavy movements in the Desert Southwest from 5-7 May. The highest number of singed detections during the spring season (four detections) was found following this period.

Data from BirdCast suggests that the 2016 – 2017 monitoring year captured the entire period of fall migration within the biologically informed season ending on December 15, 2017. The BirdCast West regional migration summaries were available from 26 August – 21 October 2015 with several weeks missing analysis. During the 2016 – 2017 monitoring year, movements were described as light to moderate in California and Desert Southwest each week with locally moderate movements noted October 13 – 20.

During the 2016 – 2017 monitoring year the highest numbers of detections and fatality estimates were associated with seasonal migration. An increase in the number of detections in the tower area during spring and fall aligns with general patterns of bird migration in the Western US as reported by BirdCast. However, peaks in detections per day within spring and fall were not associated with migratory pulses as described by BirdCast. Thus, based on the fourth year of monitoring, anticipating local bird movements and the potential for daily peaks in detections is not feasible using BirdCast because the scale at which BirdCast reports migration patterns. The Unit 2 heliostat area was monitored during the 2016 – 2017 winter and 2017 spring seasons limiting the inference in the 2016 – 2017 monitoring year regarding temporal patterns. Consistent with previous monitoring years, the pattern in detections per day in 2016 – 2017 winter and 2017 spring mirrored that of patterns in the tower area with more detections found in spring than in summer.



**Figure 6. Number of Detections on Each Survey Date, 2016 – 2017 Monitoring Year.**

Eleven birds were discovered injured during the 2016 – 2017 monitoring year (Table 3) of which 10 were released alive and one died at rehab. In accordance with the Plan, staff members at the rehab center to which injured birds were transported were asked if they had received any birds with singed feathers or evidence of concentrated-flux effects; no records of singed birds were reported by the rehab center. Furthermore, neither the Ivanpah facility nor its designated biologist was contacted by any veterinarian or rehab center about singed birds brought in by non-project staff.

**Table 3. Avian Injuries Detected 2016 – 2017 Monitoring Year.**

Date	Species	Age	Sex	Cause of Injury	Flux Grade*	Status
5/2/2017	mourning dove	adult	unknown	collision	NA	Released at rehab
5/9/2017	mourning dove	adult	Unknown	collision	NA	Released at rehab
6/20/2017	red-tailed hawk	immature	unknown	unknown	NA	Released at rehab
8/22/2017	rock pigeon	unknown	unknown	singed	2	Released at rehab
8/26/2017	lazuli bunting	unknown	unknown	singed	2	Released at rehab
8/30/2017	mourning dove	immature	unknown	unknown	NA	Released on-site
9/12/2017	rock pigeon	unknown	unknown	singed	2	Released at rehab Released at golf course pond
9/27/2017	eared grebe	unknown	unknown	unknown	NA	Released at golf course pond
10/7/2017	Cooper's hawk	adult	unknown	unknown	Unk	Died at rehab
11/6/2017	house sparrow	unknown	female	singed	3	Released at rehab

\*NA – Not Applicable

### 3.1.2 Summary of Bat Detections

Fifteen bats representing five species and two unidentified species were detected as fatalities during the 2016 – 2017 monitoring year. One big brown bat (*Eptesicus fuscus*), one canyon bat (*Parastrellus Hesperus*), two California myotis (*Myotis californicus*), two Mexican free-tailed bats (*Tadarida brasiliensis*), one Yuma bat (*Myotis yumanensis*), and one unidentified myotis were located in the Unit 1 ACC building; one California myotis, one canyon bat, and two unidentified bats were located in the Unit 2 ACC building, one Mexican free-tailed bat (*Tadarida brasiliensis*) was located in the Unit 3 power block; and two unidentified bats were located in the Unit 3 ACC building. The number of bats detected (n<5) per species was not sufficient to produce a robust statistical estimate by species. Given the few detections of bats, they are not discussed further.

## 3.2 Locations of Avian Detections

### 3.2.1 Detections by Project Area

During the 2016 – 2017 monitoring year, 480 detections (96.2%) of the 499 total detections were recorded at the tower area. In addition, 13 detections (2.6%) were recorded in the Unit 2 heliostat area during 2016 – 2017 winter and 2017 spring monitoring, and 6 (1.2%) detections were recorded incidentally on other project lands (Table 4). Of the 499 avian detections, 187 (37.5%) were detected in Unit 1, 148 (29.6%) in Unit 2, and 162 (32.5%) in Unit 3; 2 detections (0.40%) were in areas not associated with a particular unit.

**Table 4. Locations of Avian Detections, 2016 – 2017 Monitoring Year.**

Location	Carcasses	Injuries	Percent of Total
Tower Area	470	10	96.2%
Unit 2 Heliostat Area*	13	0	2.6%
Other Project Lands	5	1	1.2%
<b>Total</b>	<b>488</b>	<b>11</b>	<b>100%</b>

\*Monitored during 2016 - 2017 winter and 2017 spring seasons.

## 3.3 Cause of Injury or Fatality

The following section describes the number of detections with evidence of singeing or collision; the number from other known causes; the number for which cause of injury or fatality is unknown; and the spatial distributions of detections with these causes. Figure 7 shows the distribution of detections by cause.

### 3.3.1 Singeing Effects

Of the 499 avian detections during the 2016 – 2017 monitoring year, 348 detections (69.7%) showed signs of singed feather damage, and all except one singed detection (0.28%) was found in the tower area (Table 5).

### 3.3.2 Collisions

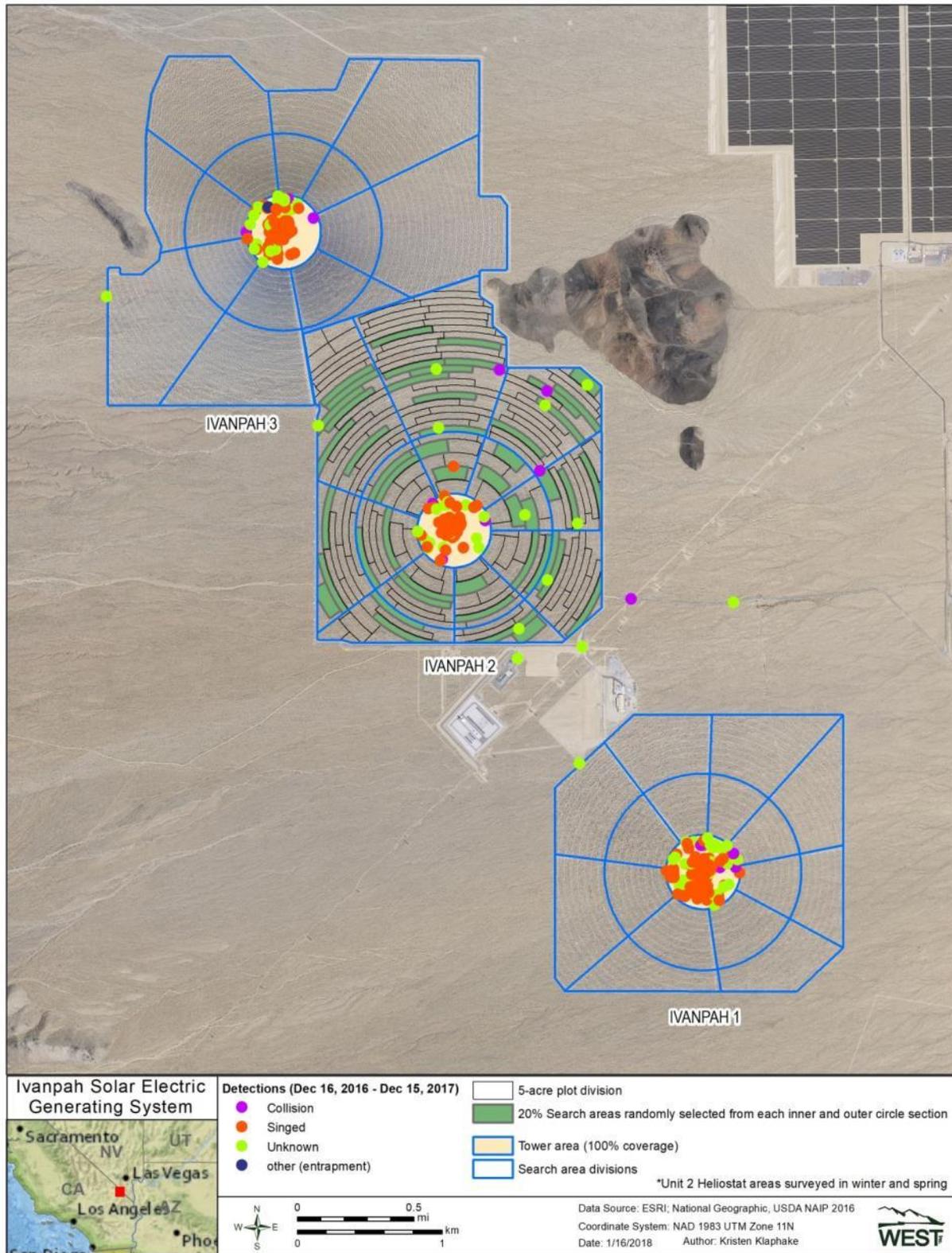
Of the 499 avian detections, evidence of collision was observed in 22 (4.4%) with 81.8% detected in the tower area (Table 5). As described in Section 2.1.1.3, the evidence that was used to classify these detections as collisions was obvious physical trauma, proximity to heliostats that had smudge marks, body imprints, and/or feathers on or near the surface of the mirror (although birds that collide with structures do not always leave visible evidence).

**Table 5. Locations of Bird Detections, 2016 – 2017 Monitoring Year.**

Location	Singed	Collision	Other**	Unknown	Total
Tower Area	347	18	7	108	480
Unit 2 Heliostat Area*	1	3	0	9	13
Other Project Lands	0	1	0	5	6
<b>Total</b>	<b>348</b>	<b>22</b>	<b>7</b>	<b>122</b>	<b>499</b>

\*Monitored during 2016 - 2017 winter and 2017 spring seasons.

\*\*Entrapped in ACC.



**Figure 7. Locations of Singed and Unsinged Detections within Solar Units.**

### 3.3.3 Other Cause

Of the 499 avian detections, seven (1.4%) were found within the ACC with no evidence of singeing or collision. Thus, consistent with previous cause assignments, these birds were determined to have been entrapped in the ACC, which resulted in fatality.

### 3.3.4 Detections of Unknown Cause

Of the 499 avian detections, evidence of singeing, collision, or other cause could not be assigned for 122 detections within the tower area (24.4%; Table 5) with 88.5% of unknown cause detections found in the tower area. Because no observable evidence of known causes (i.e., singeing, collision, entrapment, or predation) was noted in the case of these unknown detections, they cannot be clearly included in an estimate attributed to a specific cause. These detections showed no evidence of collision effects, and microscopic analysis did not indicate signs of singeing.

## 3.4 Types of Detections

Two-hundred-fifty-nine (51.9%) of the 499 detections were feather spots or partial carcasses (Table 6a). Feather spots/partial carcasses accounted for 51.7% of detection in the tower area. Evidence of singeing was noted through direct and microscopic examination on 155 of these 259 feather spots; evidence of collision (i.e., an impact imprint on a nearby mirror) was noted in the case of seven feather spots. Otherwise, the causes of the feather spots for the other 97 detections are unknown (Table 6b).

**Table 6a. Percent Composition Feather Spots to Carcasses Relative to Site Locations.**

Location	Carcasses	Feather Spots/Partial Carcass	Total	Percent Feather Spot**
Tower Area	232	248	480	51.7%
Unit 2 Heliostat Area*	3	10	13	76.9%
Other Project Lands	5	1	6	16.7%
<b>Total</b>	<b>240</b>	<b>259</b>	<b>499</b>	<b>51.9%</b>

\*Monitored during 2016 - 2017 winter and 2017 spring seasons.

\*\*Percent feather spot is total feather spots/partial carcasses divided by total detections.

**Table 6b. Percent Composition Feather Spots to Carcasses Relative to Cause.**

Cause	Carcasses	Feather Spots/Partial Carcass	Total	Percent Feather Spot**
Singed	193	155	348	44.5%
Collision	15	7	22	31.8%
Other*	7	0	7	0
Unknown	25	97	122	79.5%
<b>Total</b>	<b>240</b>	<b>259</b>	<b>499</b>	<b>51.9%</b>

\* Entrapped in ACC.

\*\* Total percent feather spot is total feather spots divided by total detections.

## Section 4.0 Fatality Estimation

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This section utilizes the detection data as described in Section 3 to develop a fatality estimate for the tower area in accordance with the modified Plan (2015). Fatality estimates are presented for the tower area for year 4 and for the heliostat area for the 2016 – 2017 winter and 2017 spring seasons exclusively. Thus, fatality estimates for the tower area can be compared among years. As the heliostat area of Unit 2 was not monitored for a full year, an annual facility wide estimate is not provided, and the heliostat areas cannot be compared among years.

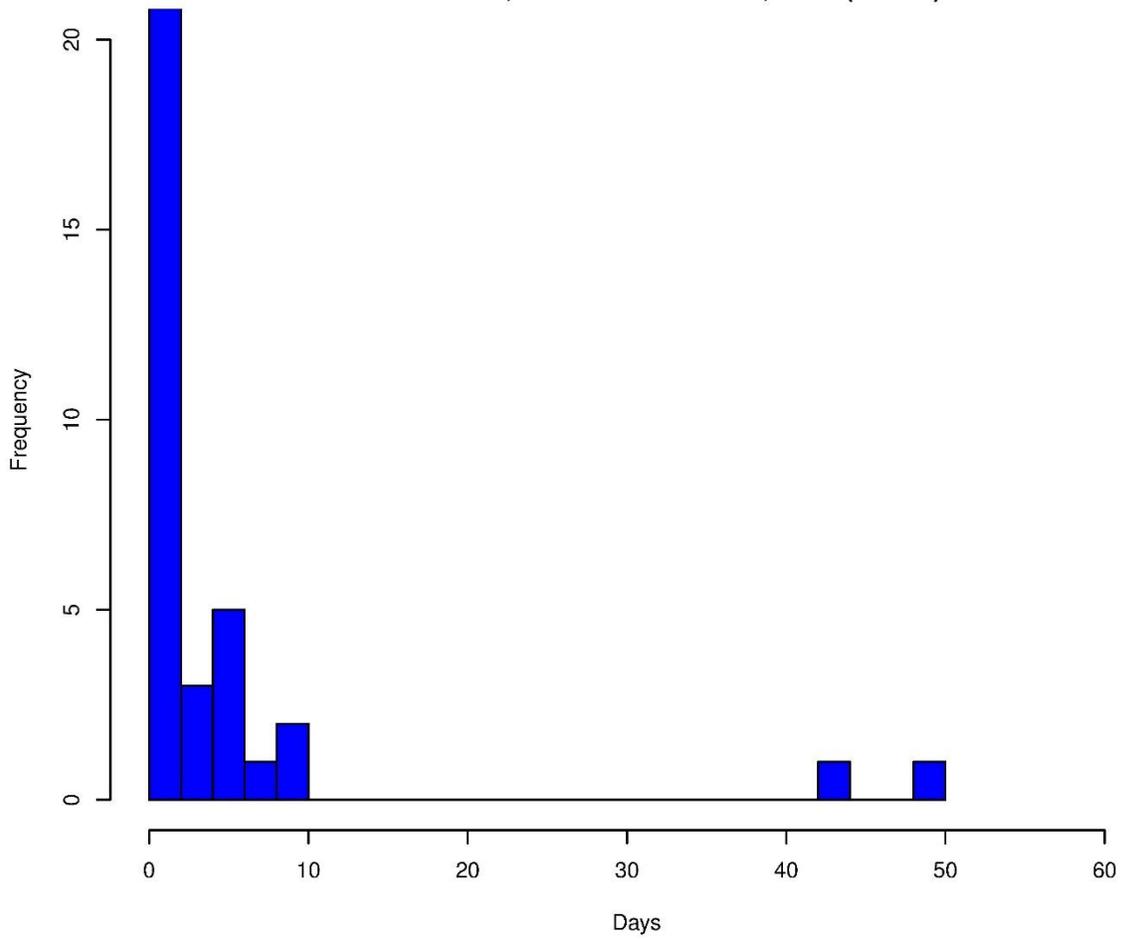
### 4.1 Estimating Model Parameters

#### 4.1.1 Carcass persistence Trials

A total of 56 small bird carcass persistence trials were conducted during the 2016 – 2017 monitoring year. Consistent with previous seasons, scavengers included common ravens (*Corvus corax*, N=32), desert kit fox (*Vulpes macrotis*; N=14), antelope ground squirrel (*Ammospermophilus leucurus*, N = 2), and ants/insects (N=1). In nine instances no scavenger was recorded on camera. Small bird carcass persistence ranged from less than one day in the case of 24 carcasses, to greater than 40 days for two carcasses (Figure 8). Large bird carcass persistence trials were discontinued beginning fall 2015 per TAC approval because no seasonal effects were found in previous large bird models and most trial carcasses persisted at least 42 days (Figure 9).

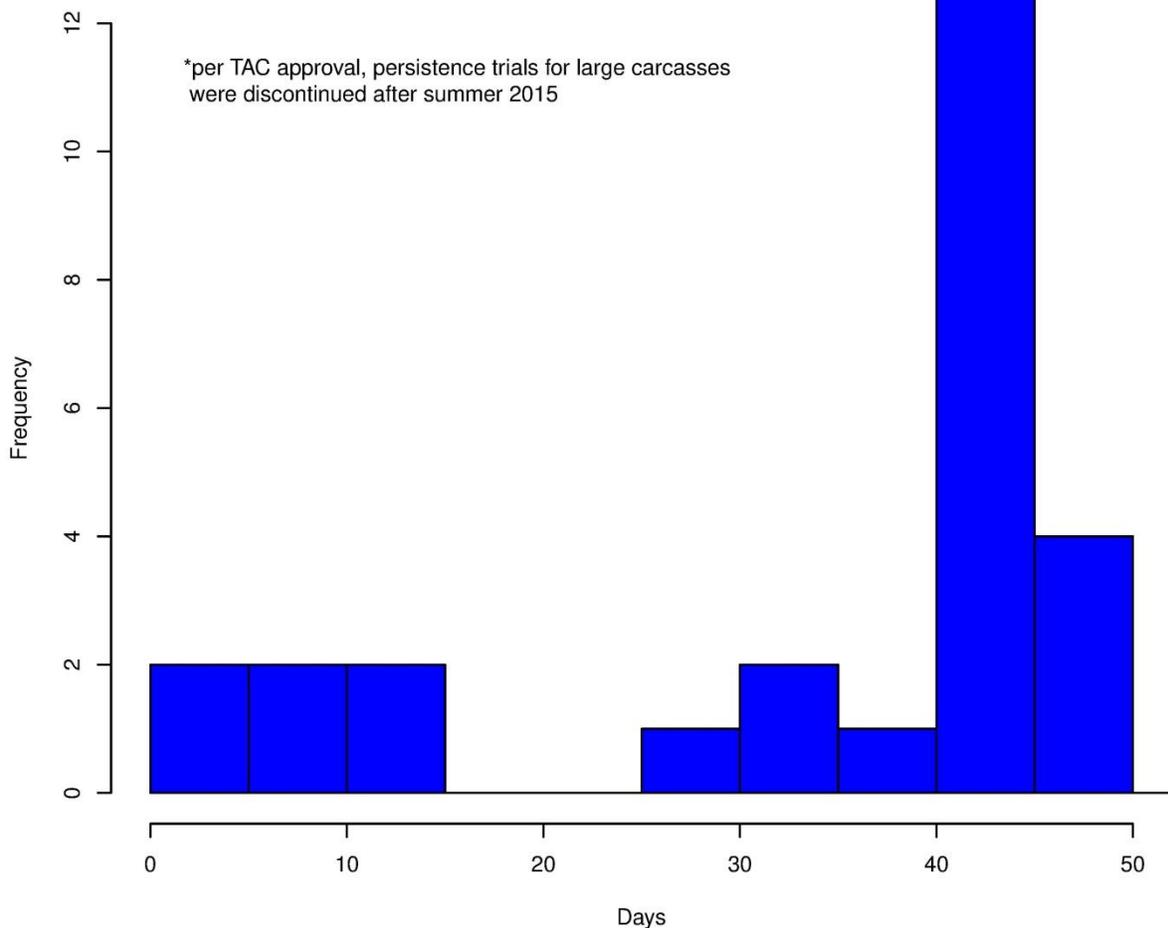
In addition to the 2016 – 2017 monitoring year described above, small bird carcass persistence trials from the first three years were also used in the model. Carcass persistence data from 98 small bird trials conducted during the 2015 - 2016 monitoring year, 127 trials conducted during the 2014 - 2015 monitoring year (97 small birds and 30 large birds distributed throughout the facility), and data from 87 trials (57 small birds and 30 large birds distributed throughout the facility) performed during the first year of monitoring (29 October 2013 – 20 October 2014) were used to model carcass persistence time. Details on carcass persistence times can be found in each respective seasonal report.

**Persistence Duration of Small Carcasses  
Year 4  
December 16, 2016–December 15, 2017 (N = 56)**



**Figure 8. Persistence Durations for Small Carcasses Placed for 2016 – 2017 Monitoring Year Carcass Persistence Trials (N = 56).**

**Persistence Duration of Large Carcasses  
Winter 2013–2014 to Summer 2015\*  
(N = 60)**



**Figure 9. Persistence Durations for Large Carcasses Placed for All Carcass Persistence Trials.**

#### 4.1.2 Model Selection for Carcass Persistence Distribution

Consistent with the findings that the removal process for small birds and large birds has been markedly different, two separate carcass persistence models were fit to this dataset: one: for small birds and one for large birds. Specifically, large birds consistently persist for long periods of time (typically greater than six weeks), while small birds tend to be removed with days or hours, and exhibit seasonal variability. Fitting separate models by size allows for more flexibility, enabling different distributions with different shapes to be fit to the small bird and large bird data, respectively.

Based on the carcass persistence data from the cumulative trials, 24 and 12 survival models were compared for the small bird and large bird datasets, respectively. Models were compared for relative explanatory power using the corrected Akaike information criterion (AICc) score (Akaike 1973), as suggested in Huso (2010). AICc provides a relative measure of model fit and parsimony among a selection of candidate models. Season was considered as a possible covariate due to cyclical variation in scavenging pressure and environmental conditions associated with seasons. Year was also incorporated

as a covariate to assess whether respective seasons could be pooled across the first four years (i.e. combine 2014 fall with 2015 fall, 2016 fall, and 2017 fall persistence trial results). Finally, Project area was also included in all models to evaluate whether or not carcass persistence differed by Project area using the full 24 quarter carcass persistence trial dataset.

The model with lowest AICc is interpreted to be the “best-fit” model relative to other models tested; however, any model within two AICc point of the best model is considered equally supported (Burnham and Anderson 2002). For small birds two loglogistic models had  $\Delta AICc$  values  $\leq 2$ : Year+Season, and Season+Year+Project Area. For large birds the exponential, Weibull, loglogistic, and lognormal models with intercept only had  $\Delta AICc$  values  $\leq 2$  (Tables 7a and 7b). Ultimately, the Year+Season loglogistic model was chosen for small birds, and an exponential model with no covariates (intercept only) was chosen for large birds. Thus, the selected model for small birds can be interpreted to estimate a different persistence probability for each season and year, for a given search interval. For large birds, the top model does not have any temporal or spatial covariates, and thus estimates of probability of persistence for large birds are based on search interval only. The chosen models predicted 98.8% of large carcasses persisted for the nominal search interval in spring and fall (7 days), and 96.5% for the nominal search interval in summer and winter (21 days). For small birds, the model predicted 19.0% of carcasses persisted for the nominal search interval during the winter, 44.2% for the spring, 9.3% for the summer, and 25.3% for the fall.

**Table 7a. AICc Values for Top 12 Small Bird Carcass Persistence Models.**

Small Bird Trials			
Covariates	Distribution	AICc	$\Delta AICc$
Year + Season	loglogistic	1485.30	0
Season + Year + Project Area	loglogistic	1487.02	1.72
Year + Season	lognormal	1489.82	4.52
Season + Year + Project Area	lognormal	1491.59	6.29
Year + Season + Year*Season	loglogistic	1493.62	8.32
Season + Project Area	loglogistic	1496.23	10.93
Year + Season	weibull	1497.12	11.82
Season	loglogistic	1497.93	12.63
Season + Year + Project Area	weibull	1498.87	13.57
Season + Project Area	lognormal	1499.09	13.79
Year + Season + Year*Season	lognormal	1499.69	14.39
Season	lognormal	1500.26	14.96

**Table 7b. AICc Values for Top 12 Large Bird Carcass Persistence Models.**

Large Bird Trials			
Covariates	Distribution	AICc	Δ AICc
Intercept	exponential	97	0
Intercept	weibull	97.96	0.96
Intercept	loglogistic	98.03	1.03
Intercept	lognormal	98.15	1.15
Year + Season	exponential	101.15	4.15
Year + Season	lognormal	101.42	4.42
Season	exponential	101.48	4.48
Year + Season	loglogistic	102.22	5.22
Season	lognormal	102.38	5.38
Year + Season	weibull	102.6	5.60
Season	loglogistic	102.7	5.70
Season	weibull	102.73	5.73

### 4.1.3 Searcher Efficiency Trials

During the 2016 – 2017 monitoring year, a total of 220 searcher efficiency trials (71 small birds, 71 large birds, and 72 feather spots) were placed. Trials were placed in locations with various vegetation heights and with a range of contrast between the soil and vegetation to represent the various conditions under which searches occur. Carcasses were placed in tower areas in all seasons and in the heliostat area in the 2016 - 2017 winter and 2017 spring seasons.

Trial data from the first four years of monitoring were used to fit a searcher efficiency model for the 2016 – 2017 monitoring year. Of the 74 (22 small birds, 29 large birds, and 23 feather spots) trials placed in the 2016-2017 winter season, 60 (20 small birds, 20 large birds, 20 feather spots) were available to be found; of the 65 (23 small birds, 22 large birds, 20 feather spots) trials placed during the 2017 spring season, 62 (22 small birds, 20 large birds, and 20 feather spots) were available to be found; and of the 34 (14 small birds, 9 large birds, 11 feather spots) trials placed during the 2017 summer season, 26 (8 small birds, 7 large birds, and zero feather spots) were available to be found. Of the 65 (28 small birds, 18 large birds, and 19 feather spots) trials placed during the 2017 fall season (including the period from October 21, 2017 to December 15, 2017), 58 (21 small birds, 18 large birds, and 19 feather spots) were available to be found. Of the 306 human searcher efficiency trials conducted during the 2015-2016 monitoring year (124 small birds, 93 large birds, and 89 feather spots), 269 (95 small carcasses, 83 large carcasses, and 85 feather spots) were available to be found. Forty three carcasses (29 small carcasses, 10 large carcasses, and 4 feather spots) were removed from the trial location before searchers had an opportunity to detect the carcass. Of the 320 human searcher efficiency trials conducted in the 2014 – 2015 monitoring year (129 small birds, 96 large birds, and 95 feather spots), 268 (129 small carcasses, 96 large carcasses, and 95 feather spots) were available to be found. Fifty two carcasses (42 small carcasses, 8 large carcass, and 2 feather spots) were removed from the trial location before searchers had an opportunity to detect the carcass. An additional 154 searcher efficiency trials from the first year of study (2013 – 2014) were also

included in searcher efficiency model building. Of 154 trials from the first year of monitoring, 144 were not removed and thus available to be found by a searcher.

The selected model for searcher efficiency included carcass size and project area (unvegetated versus vegetated area), with the lowest AICc of the potential models (Table 8). Thus, the selected model can be interpreted to estimate different detection probability for detections based on the size of the detection and where it was located (vegetated versus unvegetated areas). Searcher efficiency values used to adjust detections to calculate a fatality estimate are provided in Table 9 and are based on all searcher efficiency data collected through December 15, 2017, and the selected model described above.

**Table 8. AICc Values for Searcher Efficiency Models.**

Covariates	AICc	Δ AICc
Size + Project Area	1028.58	0.00
Size + Project Area + Year	1028.63	0.05
Size + Project Area + Year + Size*Project Area + Size*Year	1028.67	0.09
Size + Project Area + Season + Year + Size*Project Area + Size*Year	1030.25	1.66
Size + Project Area + Year + Size*Year	1030.36	1.77
Size + Project Area + Year + Size*Project Area	1030.45	1.87
Size + Project Area + Size*Project Area	1030.60	2.01
Size + Project Area + Season + Year	1031.58	3.00
Size + Project Area + Season + Year + Size*Year	1032.05	3.46
Size + Project Area + Season + Year + Size*Project Area + Size*Year + Project Area*Season	1032.18	3.59

**Table 9. Human Searcher Efficiency Sample Sizes Used for Modeling, and Model Predictions for Size and Project Area Categories Year 1 – Year 4.**

Size	Location	Found	Available	Placed	Predicted Searcher Efficiency (90% CI)
Feather spot	Tower area (Unvegetated)	124	164	168	0.78 (0.74-0.82)
Small bird	Tower area (Unvegetated)	121	164	216	0.71 (0.66-0.76)
Large bird	Tower area (Unvegetated)	130	148	165	0.88 (0.85-0.91)
Feather spot	Heliostat area (Vegetated)	71	141	146	0.48 (0.42-0.54)
Small bird	Heliostat area (Vegetated)	49	137	177	0.39 (0.33-0.45)
Large bird	Heliostat area (Vegetated)	83	127	146	0.65 (0.59-0.71)

## 4.2 Fatality Estimates of Known Causes for 2016 – 2017 Monitoring Year

Fatality estimates are calculated where appropriate for the tower area for all seasons and the Unit 2 heliostat area for the 2016 - 2017 winter and 2017 spring seasons. Estimates are not provided for factor combinations with five or fewer detections; thus, marginal totals (e.g. total singed, total known cause, etc.) for the tables below may not reflect the sum of estimates within a given row or column (and are generally higher).

There were 377 bird detections where the cause of death or injury could be determined and were facility related, of which 313 were included in the fatality estimate model (Tables 10a and 10b). Of these 313 detections, 87 were from the ACC that were added unadjusted to the estimator output, to produce the total fatality estimate of known cause (Tables 11 and 12). There were 63 detections showing evidence of singeing outside the ACC buildings that were not included in the fatality estimates. Five were excluded because they were outside the standardized survey areas and 58 were excluded because they were determined to be older than the search interval. The Huso estimator assumes that a carcass will only have one opportunity to be discovered. Including carcasses that are older than the search interval - and thus present for more than one search opportunity - would bias the estimate (high); effectively they would be 'double counted' if they were included and adjusted for detection probability. Thus, these carcasses are excluded. A subset of the incidental detections in the power block was included within the tower area total estimate, due to the assumption of a daily search interval. Those incidental detections in the power block that were determined to be older than 24 hours were not included in the fatality estimator. Estimates from the tower area should be interpreted with caution due to the inclusion of numerous incidental discoveries from the power block.

During the period 2016 – 2017 monitoring year (365 days of monitoring), there were an estimated 1414 fatalities (90% confidence interval 1161-1757) based on detections in the tower area from known causes (i.e., singeing, collision, or entrapment in the ACC; Table 11). No estimate is provided for the Unit 2 heliostat area as there were fewer than 5 detections. Small birds accounted for 99% of the estimated known cause fatalities in the tower area (Table 12).

**Table 10a. Number of Bird Detections Based on Known Causes Included or Excluded from Fatality Estimates, by Cause.**

Location	Included			Excluded			Total
	Collision	Singed	Other*	Collision	Singed	Other	
Tower Area	18	284	7	0	63	0	372
Unit 2 Heliostat Area**	3	1	0	0	0	0	4
Other Project Lands	0	0	0	1	0	0	1

\*Entrapped in ACC

\*\*Monitored during 2016 - 2017 winter and 2017 spring seasons.

**Table 10b. Number of Bird Detections Based on Known Causes Included or Excluded from Fatality Estimates, by Carcass Size.**

Location	Included			Excluded			Total
	Large Birds	Small Birds	Raptors*	Large Birds	Small Birds	Raptors*	
Tower Area	13	296	2	4	59	2	372
Unit 2 Heliostat Area**	3	1	1	0	0	0	4
Other Project Lands	0	0	0	0	1	0	1

\* All raptors are considered “Large Birds”, therefore the number of raptor detections in a row or column is not added to the total.

\*\*Monitored during 2016 - 2017 winter and 2017 spring seasons.

**Table 11. 2016 – 2017 Monitoring Year Avian Fatality Estimates by Cause (with Lower and Upper 90% Confidence Intervals) Based on Detections of Known Causes Included in the Model.**

Location	Collision	Singed	Other*	Total Known Cause
Tower Area	56 (47-69)	1351 (1106-1679)	7	1414 (1161-1757)
Unit 2 Heliostat Area**	N ≤ 5 <sup>^</sup>	N ≤ 5	0	N ≤ 5

\*Entrapped in ACC.

\*\*Monitored during 2016 - 2017 winter and 2017 spring seasons.

<sup>^</sup> N ≤ 5 indicates 5 or fewer detections and no fatality estimate is provided.

**Table 12. 2016 – 2017 Monitoring Year Avian Fatality Estimates by Carcass Size (with Lower and Upper 90% Confidence Intervals) Based on Detections of Known Causes Included in the Model.**

Location	Large Birds	Small Birds	Raptors	Total
Tower Area	16 (15-16)	1398 (1146-1741)	N ≤ 5*	1414 (1161-1757)
Unit 2 Heliostat Area**	N ≤ 5	N ≤ 5	0	N ≤ 5

\*N ≤ 5 indicates 5 or fewer detections and no fatality estimate is provided

\*\*Monitored during 2016 - 2017 winter and 2017 spring seasons.

### 4.3 Fatality Estimates of Unknown Causes for 2016 – 2017 Monitoring Year

Per Section 3.1 of the Plan, fatality estimates are also to be provided based on detections of birds that were injured or that died of unknown causes. Because no observable evidence of known causes (i.e., singeing, collision, entrapment, or predation) was noted in the case of these unknown detections, they cannot be clearly included in an estimate attributed to a specific cause. The methods for determining fatality estimates for these unknown detections are the same as those described in Section 4.1 for detections with direct evidence of the cause of the fatality (i.e., singeing, collision, or other).

There were 122 detections where the cause of death could not be determined, of which 98 were included in the fatality estimator (Tables 13a and 13b). Of the 24 detections of unknown cause excluded from the fatality estimator, five were detected outside standard search areas, and 19 were determined to be older than the search interval. As described earlier, a fatality total is not presented as the Unit 2 heliostat area was not monitored beyond the 2017 spring season.

During the period of 2016 – 2017 monitoring year, the total estimate of fatalities from unknown cause was 1101 (90% confidence interval 748-1626; Table 14), with approximately 53.5% of unknown cause fatalities estimated in the tower area and 46.5% estimated in the Unit 2 Heliostat area during the 2016 - 2017 winter and 2017 spring seasons. Small birds accounted for 88.4% of unknown cause fatalities (Table 14).

**Table 13a Number of Detections from Unknown Causes, and Number Included in Fatality Estimates, by Cause.**

Location	Included	Excluded	Total
Tower Area	90	18	108
Unit 2 Heliostat Area*	8	1	9
Other Project Lands	0	5	5
<b>Total</b>	<b>98</b>	<b>24</b>	<b>122</b>

\*Monitored during 2016 - 2017 winter and 2017 spring seasons.

**Table 13b. Number of Detections from Unknown Causes, and Number Included in Fatality Estimates, by Carcass Size.**

Location	Included			Excluded			Total
	Large Birds	Small Birds	Raptors*	Large Birds	Small Birds	Raptors*	
Tower Area	17	73	2	2	16	0	108
Unit 2 Heliostat Area**	4	4	0	1	0	0	9
Other Project Lands	0	0	0	3	2	1	5

\*All raptors are considered “Large Birds”, therefore the number of raptor detections in a row or column is not added to the total.

\*\*Monitored during 2016 - 2017 winter and 2017 spring seasons.

**Table 14. 2016 – 2017 Monitoring Year Avian Fatality Estimates by Carcass Size (with Lower and Upper 90% Confidence Intervals) Based on Detections of Unknown Causes Included in the Model.**

Location	Large Birds	Small Birds	Raptors	Total†
Tower Area	22 (21-23)	567 (455-726)	N ≤ 5*	589 (478-749)
Unit 2 Heliostat Area**	N ≤ 5	N ≤ 5	0	512 (188-974)

\* N ≤ 5 indicates 5 or fewer detections and no fatality estimate is provided

\*\*Monitored during 2016 - 2017 winter and 2017 spring seasons.

† Rows and columns may not sum to estimated totals since estimates are not provided when 5 or fewer detections are recorded in a fatality category; however, detections from these categories *are included* in the total estimates.

## 4.5 Total Fatality Estimates for Top Ten Detected Species or Species Groups

Fatality estimates were calculated for the ten most frequently detected species groups using a species composition approach (Table 15). These species groups accounted for 56.0% of the estimated fatalities during the 2016 – 2017 monitoring year. Of fatality estimates, the ten most frequently detected species groups account for 63.2% of fatalities of known cause, and 46.0% of those of unknown cause. The top two species groups (unidentified small bird and house finch) account for 25.6% of fatalities of known cause, and 31.2% of those of unknown cause. The species composition of the remaining eight detected identified species consists of three ground/shrub dwelling birds (black-throated sparrow, mourning dove, northern mockingbird); the remaining five species/species groups are aerial insectivores.

**Table 15. Fatality Estimates for Top 10 Species-groups Detected and Included in Analysis (with 90% Confidence Interval).**

Species	Known Cause	Unknown Cause	Total Estimate (90% CI) †
unidentified bird (small)	392 (312-488)	186 (154-243)	579 (467-730)
house finch	10 (9-11)	N ≤ 5	167 (10-486)
yellow-rumped warbler	124 (96-142)	N ≤ 5	136 (102-150)
unidentified swallow	81 (61-113)	N ≤ 5	127 (95-180)
yellow warbler	103 (82-134)	N ≤ 5	118 (94-156)
black-throated sparrow	113 (31-274)	0	113 (31-274)
northern rough-winged swallow	57 (45-75)	N ≤ 5	71 (55-94)
mourning dove	N ≤ 5	37 (10-90)	66 (14-141)
northern mockingbird	N ≤ 5	N ≤ 5	62 (45-89)
unidentified warbler	49 (41-63)	N ≤ 5	59 (49-76)

\* N ≤ 5 indicates 5 or fewer detections and no fatality estimate is provided.

† Rows and columns may not sum to estimated totals since estimates are not provided when 5 or fewer detections are recorded in a fatality category; however, detections from these categories *are included* in the total estimates.

## 4.6 Comparison of the Four Years of Tower Area Fatality Estimates

Bat fatalities occurred in low numbers during the four years of monitoring. The total number of bat detections was 32 in Year 1, 17 in Year 2, 18 in Year 3, and 15 in Year 4. The number of bat detections in Year 4 was similar to Year 2 and Year 3, and was lower than Year 1. Anecdotally, the acoustic deterrence appears to be effective; however, no statistical tests have been performed to assess effectiveness.

The comparison of avian fatalities is provided for the tower area only, since heliostat monitoring ended after the spring season in Year 4. The avian fatality estimate for known cause in the tower area in Year 4 (1414 (1161-1757)) was slightly below Year 3 (1438 (1253-1749)). Both Year 3 and 4 known cause estimates in the tower area are higher than Years 1 and 2 (819 (733-919) and 881 (793-1027), respectively). However, the 90% confidence intervals overlapped between Years 3 and 4. The unknown cause estimate in Year 4 (589 (478-749)) was slightly higher than previous years (Year 3 - 518 (453-628); Year 2 - 413 (363-500) and Year 1 - 404 (361-475)), but with significant overlapping of the 90% confidence intervals through all years.

## Section 5.0 Framework for Management and Risk Response

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According to Section 5.3 of the Plan, migratory bird mortality at Ivanpah is categorized as high, medium, or low to provide an appropriate biological basis for TAC review and decision making, based on the following definitions:

1. “High: Estimated avian mortality or injury levels are facility-caused and likely to seriously and negatively affect local, regional, or national avian populations within a particular species or group of species.”
2. “Medium: Estimated avian mortality or injury levels are facility-caused and have the potential to negatively affect local, regional, or national populations within a particular avian species or group of species.”
3. “Low: Estimated avian mortality or injury levels that have minimal or no potential to negatively affect local, regional, or national populations within a particular species or group of species.”

None of the 27 identifiable species represented by more than three detections is listed under the Federal or State ESA or particularly rare locally, regionally, or nationally. One special status species – the yellow warbler (California species of special concern) – was in this group; however, as discussed further, all 27 species are relatively abundant and widespread when considering habitat associations and national, regional and local populations, as relevant.

To evaluate the potential for population-level effects on a national, regional, or local scale, the review framework provided in the ABMMP Rev 14 was followed. For the analysis of potential population-level effects, the national and regional populations are defined as the United States and the State of California, respectively. Species with more than 5 detections (where fatality estimates can be reliably produced), and any sensitive species detected during surveys are evaluated, consistent with previous quarterly and annual reports. For the national and regional populations, estimates of the total population nationally and regionally are obtained for each species from the Partners in Flight bird populations database (Partners in Flight Science Committee 2013). Each species fatality estimate is divided by the regional or national population estimate to determine the proportion of the population removed, which can be used to assess the potential for a population level effect (Erickson et al. 2016).

Overall, less than 0.001% of the regional and national population was removed for all species due to mortality at the Project (Table 16). Based on the small proportion of the national and regional populations removed for any species, there is a low potential for a population level effect at the national and regional scales.

**Table 16. Fatality and Population Estimates for the Top Seven Species during the 2016 – 2017 Monitoring Year.**

Species	Occurrence at Project	Year 4 Fatality Estimates	Population estimates from Partners in Flight Database		Percent of Population	
		Total Estimate (90% CI)	Regional (California)	National	Regional	National
house finch	Year round resident	167 (10-486)	9,200,000	34,000,000	<0.001%	<0.001%
yellow-rumped warbler	Spring and fall migrant	136 (102-150)	1,800,000	38,000,000	<0.001%	<0.001%
yellow warbler	Uncommon spring migrant, common fall migrant	118 (94-156)	600,000	34,000,000	<0.001%	<0.001%
black-throated sparrow	Year round resident	113 (31-274)	4,000,000	29,000,000	<0.001%	<0.001%
northern rough-winged swallow	Summer resident	71 (55-94)	1,400,000	13,000,000	<0.001%	<0.001%
mourning dove	Fall migrant, year round resident	66 (14-141)	3,500,000	96,000,000	<0.001%	<0.001%
northern mockingbird	Year round resident	62 (45-89)	600,000	27,000,000	<0.001%	<0.001%

\*NA = not applicable as the species does not breed locally.

To evaluate the potential effect on local populations, two methods are used in a sequential fashion. First, all species detected are reviewed to determine if the species is a part of the local population. Second, if the species that are determined to be a part of the local population, and an estimate can be reliably produced, a weight of evidence approach is used.

A decision framework is used to determine if a species is a local breeder. This framework assumes that if a fatality is found during the breeding season, the fatality is of a locally breeding individual. The decision framework below describes how the data is reviewed for all species detected to determine the detections that could be of locally breeding individuals. Regardless, all special status species are reviewed to determine the number of detections of locally breeding individuals regardless of the number of detections.

Following the decision framework, species with >5 detections were reviewed to determine, based on range maps, those that could breed locally in the vicinity of the Project. Of the 21 species with > 5 detections, six were determined to be local breeders. Next, the timing of the fatalities was reviewed to determine those that occurred during the species breeding season, based on information provided in species accounts at <https://nrm.dfg.ca.gov/taxaquery/Default.aspx>. Of the six locally breeding species, two had >5 detections during the breeding season, mourning dove (11 detections) and northern mockingbird (6 detections; Table 17). There were an estimated 64 (11-139, 90% CI) local mourning dove fatalities and 62 (45-89, 90% CI) local northern mockingbird fatalities during the monitoring year. It is possible that there are multiple detections from the same individual and that the fatality estimate, which is based on feather spots and partial carcasses, is conservative and over-estimates mortality.

**Table 17. Number of Detections of Locally Breeding Species during the 2016-2017 Monitoring Year.**

Species	Start of breeding season	End of breeding season	Number of detections
Black-throated sparrow	March	June	1
Mourning dove	Late January	Late September	11
Northern mockingbird	Mid-February	Late September	6
Verdin	March	Early July	3
Costa's hummingbird	April	May	4
House finch	March	June	2

After screening the detections to determine if there are affected local populations for species, a weight of evidence approach was used to determine the potential for a local population level effect. First, the species' status was reviewed to determine if any natural resource agency has designated the area in the vicinity of the Project as a distinct population requiring special management. Neither species is a special status species nor has a special management designation in the Mojave Desert ecoregion. Second, the distribution of the species and overall population in the Mojave Desert in California and Nevada (Bird Conservation Region (BCR) 33) – obtained from the Partners in Flight database – was reviewed to determine the distribution and abundance in BCR 33. The mourning dove population estimate in BCR 33 is 1,300,000 and the northern mockingbird population estimate BCR 33 is 218,000; the estimated local fatalities are <0.001% of the BCR 33 population. Both species are short-lived and highly fecund, and

populations of birds with these life history traits are more sensitive to fecundity than adult survival (Stahl and Oli 2006). Further, both of these species have long breeding seasons providing the opportunity for multiple breeding attempts to produce offspring that could be recruited into the local population. Taken together, there is a low potential for impacts from the Project to the local population of mourning dove or northern mockingbird (Table 18).

**Table 18. Local Population Species with n>5 Detections and Fatality Estimates during the 2016-2017 Monitoring Year.**

Species	Occurrence at Project	Total Estimate (90% CI)
mourning dove	Fall migrant, year round resident	64 (11-139)
northern mockingbird	Year round resident	62 (45-89)

Second, all special status species are presented in Table 19 and are discussed in detail below using the weight of evidence approach. Special-status species recorded as detections included 27 yellow warblers (California species of special concern), 1 Vaux’s swift (California species of special concern), 2 loggerhead shrike, (California species of special concern), 1 yellow-headed blackbird (California species of special concern), and 1 bank swallow (California state threatened). The bank swallow, which is state listed as threatened, and the yellow warbler, which had over 5 detections, are discussed further below. The remaining special status species had 2 or fewer detections, so no estimate is provided, and no further analysis is warranted. Impacts from these detections do not rise above a “low” potential effect on a national, regional or local level.

**Table 19. Detections of Sensitive Species during the 2016-2017 Monitoring Year.**

Species	Status*	Fatalities	Injuries	Total
yellow warbler	SSC	27	0	27
Vaux’s swift	SSC	1	0	1
loggerhead shrike	SSC	2	0	2
bank swallow	ST	1	0	1
yellow-headed blackbird	SSC	1	0	1
<b>Total</b>	<b>SSC</b>	<b>32</b>	<b>0</b>	<b>32</b>

\*SSC = California species of special concern, ST = State threatened.

Because only one bank swallow was detected ( $N \leq 5$ ), no estimate is provided. Bank swallow is listed regionally in California due to a declining population throughout the state, and most bank swallows’ nest along the Sacramento River and its tributaries (BSTAC 2013). An estimated 20,000 bank swallows occur regionally within California and an estimated 1,400,000 occur nationally in the United States (Partners in Flight Science Committee 2013). As the local area for the Project does not contain bank swallow nesting habitat, there is no local population for evaluation. The single detection recorded during the 2016 – 2017 monitoring year likely resulted from migrating individuals that could breed as far north as Alaska. The fatality of one bank swallow represents a very small proportion of the regional or national population; thus, the estimated bank swallow fatalities during the 2016 – 2017 monitoring year does not rise above

the “low” category, as loss of this magnitude would have a minimal effect on populations at all geographic scales (regional or national).

Twenty-seven yellow warblers were detected, which equates to an estimate of 118 (90% CI 94-156). Yellow warblers are one of the most abundant warblers in North America and occur as both migrants and summer residents in California (Shuford and Gardali 2008). Yellow warblers occur in the Mojave Desert as common migrants, but they typically do not breed there and thus, there is no local area population for evaluation. An estimated 600,000 yellow warblers occur regionally within California and an estimated 34,000,000 occur nationally in the United States (Partners in Flight Science Committee 2013). As shown in Table 17 and discussed above, the estimated 118 yellow warbler fatalities represented a very small proportion of these populations (e.g., <0.001% of the California population). Thus, the estimated yellow warbler fatalities during the 2016 – 2017 monitoring year does not rise above the “low” category, as loss of this magnitude would have a minimal effect on populations at all geographic scales (regional or national).

## Section 6.0 Recommendations

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Based on the results on the Year 4 monitoring, the following recommendations are provided.

1. **Continue Implementation of the Approved Version of Revision 14 of the ABMMP.** Fatality patterns have been well characterized and a broad understanding of the timing, location, and species groups of birds is evident after four years of monitoring. The tower area is the location of all known causes – singeing, collision, and entrapment in the ACC. Rev 14, which provides ongoing systematic operational surveys in the tower area, will provide data that will allow for continued annual risk analysis, adaptive management and a comparison in the trends in detections with Years 1 – 4.

## Section 9.0 Literature Cited

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**Appendix A. Individual Avian Detections.**

USFWS #	Common Name	Species Code	How Found	Detection Date	Collection Date	Condition	Time Since Death/Injury	Description of Carcass/Injury	Cause of Death/Injury	Burn Grade	Unit	Nearest Project Feature	UTM Coordinates	SPUT Revisions
2016_703_ISEGS	Verdin	VERD	Carcass Survey	12/20/2016	12/20/2016	Mummified	1 month +	Whole carcass. Evidence of singe on right wing coverts.	Scorched or singed	1	2	Powerblock	638637, 3935845	NA
2016_704_ISEGS	Tree Swallow	TRES	Carcass Survey	12/20/2016	12/20/2016	Broken up	1 month +	Broken up carcass consisting of partial left wing. Evidence of curling to primaries and singeing to primaries and coverts.	Scorched or singed	Unk	2	Powerblock	638654, 3935851	NA
2016_705_ISEGS	Tree Swallow	TRES	Carcass Survey	12/20/2016	12/20/2016	Broken up	1 month +	Broken up carcass consisting of partial left wing. Evidence of singeing to coverts with primaries and secondaries singed off.	Scorched or singed	Unk	2	Powerblock	638646, 3935837	NA
2016_706_ISEGS	Unknown Sparrow	UNSP	Carcass Survey	12/20/2016	12/20/2016	Broken up	3-6 days	Broken up carcass consisting of partial left wing, 100 body feathers, 8 primaries, 1 secondary, and 3 tertials. No evidence of collision or singe.	Unknown		2	Powerblock	638599, 3935813	NA
2016_707_ISEGS	Green-winged Teal	GWTE	Carcass Survey	12/20/2016	12/20/2016	Feather spot	3-6 days	Feather spot size large consisting of 2 secondaries and 50 body feathers. No evidence of collision or singe.	Unknown		2	Heliostat	639576, 3936853	NA
2016_708_ISEGS	Unknown Small Bird	UNID	Carcass Survey	12/21/2016	12/21/2016	Broken up	3-6 days	Broken up carcass consisting of 3 retrices held together by dried flesh, 1 loose primary. No evidence of collision or singe.	Unknown		2	Heliostat	638488, 3935761	NA
2016_709_ISEGS	Unknown Small Bird	UNID	Carcass Survey	12/21/2016	12/21/2016	Feather spot	2 weeks	Feather spot size large consisting of 100 body feathers, 4 primaries, 6 secondaries, and 5 tail feathers. No evidence of collision or singe.	Unknown		2	Heliostat	638447, 3935797	NA
2016_710_ISEGS	Western Meadowlark	WEME	Carcass Survey	12/21/2016	12/21/2016	Feather spot	3-6 days	Feather spot consisting of 6 retrices, 3 primaries, 5 secondaries, 2 clumps of breast feathers, and 8 contour feathers. No evidence of collision or singe.	Unknown		2	Heliostat	638735, 3936023	NA
2016_711_ISEGS	Unknown Warbler	UNWA	Carcass Survey	12/21/2016	12/21/2016	Broken up	3-6 days	Broken up carcass consisting of partial leg, primaries and several clumps of body feathers held together by dried flesh. Evidence of curling to primaries and singeing to body feathers.	Scorched or singed	2/3	2	Heliostat	638718, 3935729	NA
2016_712_ISEGS	American Pipit	AMPI	Carcass Survey	12/27/2016	12/27/2016	Feather spot	2 weeks	Large Feather spot consisting of 20 body feathers, 8 secondaries, 8 primaries and 6 retricies.	Unknown		1	Heliostat	640310, 3933696	NA
2016_713_ISEGS	Yellow-rumped Warbler	YRWA	Incidental	12/29/2016	12/29/2016	Mummified	1 month +	Mummified carcass missing left wing. All flight feathers singed. 90% body feathers singed.	Scorched or singed	2	3	Powerblock	637483, 3937940	NA
2017_001_ISEGS	Unknown Small Bird	UNID	Carcass Survey	1/10/2017	1/10/2017	Feather spot	8-24 hours	Large feather spot consisting of 100 contour feathers with no evidence of collision or flux.	Unknown		2	Heliostat	638580, 3935731	NA
2017_002_ISEGS	American Pipit	AMPI	Carcass Survey	1/10/2017	1/11/2017	Feather spot	2 days	Small feather spot consisting of 6 primaries, 15 secondaries, 13 retricies and 7 contour feathers. No evidence of collision or flux.	Unknown		2	Heliostat	638525, 3936025	NA
2017_003_ISEGS	American Robin	AMRO	Carcass Survey	1/12/2017	1/12/2017	Broken up	8-24 hours	Broken up carcass consisting of 8 retricies, 5 undertail coverts connected by tissue. No	Unknown		2	Powerblock	638601, 3935928	NA

USFWS #	Common Name	Species Code	How Found	Detection Date	Collection Date	Condition	Time Since Death/Injury	Description of Carcass/Injury	Cause of Death/Injury	Burn Grade	Unit	Nearest Project Feature	UTM Coordinates	SPUT Revisions
								evidence of of collision or singe.						
2017_004_ISEGS	White-Crowned Sparrow	WCSP	Carcass Survey	1/17/2017	1/17/2017	Broken up	8-24 hours	Broken up carcass consisting of all pieces of the body excluding the head. No evidence of singe or collision	Unknown		1	Powerblock	640417, 3933542	NA
2017_005_ISEGS	Eared Grebe	EAGR	Carcass Survey	1/20/2017	1/20/2017	Mummified	1 month +	Mummified bird consisting of almost the whole carcass except the head. No evidence of singe or collision.	Unknown		1	Project Structure	640372, 3933488	NA
2017_006_ISEGS	Loggerhead Shrike	LOSH	Carcass Survey	1/31/2017	1/31/2017	Broken up	3-6 days	Broken up carcass consisting of partial head, 2 primaries, 4 secondaries, and 50 body feathers. Evidence of collision by broken bill tip.	Collision (other)		2	Powerblock	638657, 3935850	NA
2017_007_ISEGS	House Finch	HOFI	Incidental	2/9/2017	2/9/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass. Evidence of curling to primaries and secondaries on right wing, singeing to top of head and right side of face.	Scorched or singed	3	2	Powerblock	638625, 3935925	NA
2017_008_ISEGS	Unknown Sparrow	UNSP	Carcass Survey	2/23/2017	2/23/2017	Feather spot	3-6 days	Feather spot consisting of 1 secondary, 1 covert, 8 contour feathers. No evidence of collision or singe.	Unknown		2	Powerblock	638587, 3935834	NA
2017_009_ISEGS	White-Crowned Sparrow	WCSP	Carcass Survey	3/2/2017	3/2/2017	Broken up	3-6 days	Broken up carcass consisting of partial left wing attached by dried flesh, 3 retrices, 1 secondary, 2 tertials, 20 body feathers. No evidence of collision or singe.	Unknown		1	Heliostat	640246, 3933375	NA
2017_010_ISEGS	Rock Pigeon	ROPI	Incidental	3/4/2017	3/4/2017	Dead, fresh (eyes moist)	0-8 hours	Broken up carcass consisting of lower body with legs and wings. Evidence of curling to primaries and secondaries, singeing to body feathers.	Scorched or singed	3	2	Powerblock	638590, 3935873	NA
2017_011_ISEGS	Unknown Small Bird	UNID	Carcass Survey	3/7/2017	3/7/2017	Feather spot	3-6 days	Feather spot size large consisting of 2 primaries and 6 body feathers. Evidence of curling to primaries, singeing to body feathers.	Scorched or singed	3	3	Powerblock	637459, 3937902	NA
2017_012_ISEGS	House Finch	HOFI	Carcass Survey	3/7/2017	3/7/2017	Dead, fresh (eyes moist)	8-24 hours	Whole carcass. No evidence of collision or singe.	Unknown		2	Heliostat	639300, 3935505	NA
2017_013_ISEGS	Loggerhead Shrike	LOSH	Carcass Survey	3/16/2017	3/16/2017	Broken up	2 weeks	Broken up carcass consisting of whole body except right wing and tail. No evidence of collision or singe,	Unknown		2	Heliostat	638533, 3936963	NA
2017_014_ISEGS	Unknown Small Bird	UNID	Carcass Survey	3/22/2017	3/22/2017	Broken up	2 weeks	Whole carcass minus section of head. Evidence of singeing to belly with primaries, secondaries, and retrices singed off.	Scorched or singed	3	1	ACC Building	640372, 3933535	NA
2017_015_ISEGS	Unknown Small Bird	UNID	Carcass Survey	3/22/2017	3/22/2017	Broken up	1 month +	Partial carcass with legs and wings but missing heads. Evidence of singe over entire body.	Scorched or singed	3	1	ACC Building	640359, 3933534	NA
2017_016_ISEGS	Costa's Hummingbird	COHU	Carcass Survey	3/22/2017	3/22/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of singeing to all parts of body with all flight feathers singed off.	Scorched or singed	3	2	Powerblock	638657, 3935869	NA
2017_017_ISEGS	Eurasian Collared Dove	ECDO	Carcass Survey	3/23/2017	3/23/2017	Feather spot	3-6 days	Feather spot size small consisting of 20 body feathers, 7 secondaries, and 5 coverts. Evidence of collision with imprint	Collision with solar panel/heliostat		2	Heliostat	639298, 3936812	NA

USFWS #	Common Name	Species Code	How Found	Detection Date	Collection Date	Condition	Time Since Death/Injury	Description of Carcass/Injury	Cause of Death/Injury	Burn Grade	Unit	Nearest Project Feature	UTM Coordinates	SPUT Revisions
								found on heliostat mirror matching feathers and size of species.						
2017_018_ISEGS	Sage Thrasher	SATH	Carcass Survey	3/23/2017	3/23/2017	Broken up	3-6 days	Broken up carcass consisting of partial wing pieces and many loose feathers, 6 primaries, 2 retrices, 11 secondaries, and 24 contour feathers. No evidence of collision or singe.	Unknown		2	Heliostat	638548, 3936557	NA
2017_019_ISEGS	Violet-green Swallow	VGSW	Incidental	3/27/2017	3/27/2017	Dead, fresh (eyes moist)	8-24 hours	Whole carcass. Evidence of curling to primaries, secondaries, and retrices, singeing to undertail coverts, damage to mandible.	Scorched or singed	3	3	Powerblock	637487, 3937914	NA
2017_020_ISEGS	Unknown Hummingbird	UNHU	Carcass Survey	3/28/2017	3/28/2017	Broken up	3-6 days	Broken up carcass consisting of a left wing. Evidence of singe on tips of primaries and secondaries.	Scorched or singed	1	2	Powerblock	638585, 3935835	NA
2017_021_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	3/28/2017	3/28/2017	Feather spot	8-24 hours	Feather spot size large consisting of 16 body feathers. No evidence of collision or singe.	Unknown		2	Powerblock	638586, 3935834	NA
2017_022_ISEGS	American Kestrel	AMKE	Carcass Survey	3/29/2017	3/29/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass with 4 rectrices and 200 contour feathers. Evidence of singeing to primaries, secondaries, wing coverts, and some contour feathers.	Scorched or singed	3	2	Heliostat	638652, 3936290	NA
2017_023_ISEGS	Tree Swallow	TRES	Carcass Survey	4/3/2017	4/3/2017	Dead, fresh (eyes moist)	3-6 days	Whole carcass. Evidence of collision by broken end section of bill.	Collision (other)		3	ACC Building	637490, 3937971	NA
2017_024_ISEGS	Costa's Hummingbird	COHU	Carcass Survey	4/3/2017	4/3/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	2 days	Whole carcass. Evidence of curling to retrices, singeing to throat, flank, top of head, and underside.	Scorched or singed	3	3	Powerblock	637517, 3937903	NA
2017_025_ISEGS	Brown-headed cowbird	BHCO	Carcass Survey	4/3/2017	4/3/2017	Mummified	1 month +	Whole carcass. Evidence of singeing in wing flight feathers.	Scorched or singed	3	3	Powerblock	637453, 3937913	NA
2017_026_ISEGS	Horned Lark	HOLA	Carcass Survey	4/3/2017	4/3/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass. Evidence of collision by broken neck and damage to bill.	Collision with solar panel/heliostat		3	Heliostat	637508, 3938139	NA
2017_027_ISEGS	Unknown Large Bird	UNLB	Carcass Survey	4/3/2017	4/3/2017	Feather spot	3-6 days	Feather spot size small consisting of 18 body feathers. No evidence of collision or singe.	Unknown		2	Heliostat	639101, 3935168	NA
2017_028_ISEGS	Costa's Hummingbird	COHU	Carcass Survey	4/4/2017	4/4/2017	Dead, fresh (eyes moist)	8-24 hours	Whole carcass. No evidence of collision or singe.	Unknown		2	Project Feature	638404, 3935840	NA
2017_029_ISEGS	Unknown Small Bird	UNID	Carcass Survey	4/4/2017	4/4/2017	Feather spot	3-6 days	Feather spot size large, consisting of 3 flight feathers, 12 contour feathers. Evidence of curling to flight feathers, singe to contour feathers.	Scorched or singed	3	1	Powerblock	640363, 3933509	NA
2017_030_ISEGS	Mourning Dove	MODO	Carcass Survey	4/4/2017	4/4/2017	Feather spot	8-24 hours	Feather spot size small consisting of 4 retrices and 36 body feathers. No evidence of singe or collision.	Unknown		2	Heliostat	637716, 3936572	NA
2017_031_ISEGS	House Finch	HOFI	Carcass Survey	4/5/2017	4/5/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Singeing to flight feathers in wings and tail, back, and upperwing coverts.	Scorched or singed	3	1	Heliostat	640555, 3933621	NA
2017_032_ISEGS	Cliff Swallow	CLSW	Carcass Survey	4/12/2017	4/12/2017	Dead, Semi-fresh (eyes	3-6 days	Whole carcass. Evidence of collision with top left of skull fractured.	Collision with solar panel/heliostat		1	Heliostat	640559, 3933605	NA

USFWS #	Common Name	Species Code	How Found	Detection Date	Collection Date	Condition	Time Since Death/Injury	Description of Carcass/Injury	Cause of Death/Injury	Burn Grade	Unit	Nearest Project Feature	UTM Coordinates	SPUT Revisions
						desiccated, rigor mortis)								
2017_033_ISEGS	Common Poorwill	COPO	Carcass Survey	4/12/2017	4/12/2017	Feather spot	3-6 days	Feather spot small consisting 3 primaries and 4 coverts. No evidence of collision or singe.	Unknown		2	Heliostat	639285, 3936712	NA
2017_034_ISEGS	Unknown Small Bird	UNID	Carcass Survey	4/13/2017	4/13/2017	Feather spot	3-6 days	Feather spot size small consisting of 4 flight feathers and 16 contour feathers. Evidence of curling to flight feathers, singeing to contour feathers.	Scorched or singed	3	1	Powerblock	640355, 3933503	NA
2017_035_ISEGS	Costa's Hummingbird	COHU	Carcass Survey	4/17/2017	4/17/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	2 days	Whole carcass, singed on nape,back, wings; tail singed off; flight feathers curled; contour feathers singed and missing in places.	Scorched or singed	3	3	ACC Building	637485, 3937958	NA
2017_036_ISEGS	Yellow-rumped Warbler	YRWA	Incidental	4/17/2017	4/17/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	2 days	Whole carcass, retricies curled. Outer primaries curled. Secondaries, crown, breast and left flank singed	Scorched or singed	3	2	Powerblock	638649, 3935873	NA
2017_037_ISEGS	Eurasian Collared Dove	ECDO	Incidental	4/19/2017	4/19/2017	Feather spot	8-24 hours	Large Feather spot consisting of 1 primary, 1 secondary, 5 retricies and 50+ contour and covert feathers. No evidence of singe or collision.	Unknown		2	Unit 2 Perimeter Fence	639538, 3935043	NA
2017_038_ISEGS	Unknown Grebe	UNGR	Carcass Survey	4/20/2017	4/20/2017	Broken up	1 month +	Broken up carcass of partial wing consisting of 3 primaries, 1 secondary, and 3 coverts held together by dried flesh. No evidence of collision or singe.	Unknown		2	Heliostat	639507, 3935896	NA
2017_039_ISEGS	Mourning Dove	MODO	Carcass Survey	4/24/2017	4/24/2017	Broken up	2 days	Broken up carcass consisting of left wing, 4 retrices, 1 primary, and several hundred body feathers. No evidence of collision or singe.	Unknown		3	Heliostat	637509, 3938054	NA
2017_040_ISEGS	Costa's Hummingbird	COHU	Carcass Survey	4/24/2017	4/24/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	2 days	Whole carcass. Evidence curling to retrices, singeing and curling to body feathers.	Scorched or singed	3	3	Powerblock	637396, 3937841	NA
2017_041_ISEGS	Unknown Small Bird	UNID	Carcass Survey	4/24/2017	4/24/2017	Feather spot	3-6 days	Feather spot size small consisting of 40 contour feathers. Evidence of singe on most feathers.	Scorched or singed	Unk	3	Powerblock	637387, 3937844	NA
2017_042_ISEGS	Yellow-rumped Warbler	YRWA	Carcass Survey	4/26/2017	4/26/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass with evidence of singeing on breast feathers.	Scorched or singed	3	2	ACC Building	638694, 3935904	NA
2017_043_ISEGS	American Robin	AMRO	Carcass Survey	4/26/2017	4/26/2017	Feather spot	2 weeks	Feather Spot consisting of 5 secondaries and 1 covert. Singe on the trailing edge of two of the secondaries.	Scorched or singed	Unk	2	Powerblock	638607, 3935890	NA
2017_044_ISEGS	Yellow-rumped Warbler	YRWA	Carcass Survey	5/1/2017	9/19/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	2 days	Whole carcass. Curling to flight feathers in wings and tail, singeing to upper breast.	Scorched or singed	Unk	2	ACC Building	638647, 3935895	NA
2017_045_ISEGS	Unknown Dove	UNDV	Carcass Survey	5/1/2017	5/1/2017	Feather spot	3-6 days	Feather spot size large consisting of 36 body feathers. No evidence of collision or	Unknown		2	Heliostat	639144, 3935955	NA

USFWS #	Common Name	Species Code	How Found	Detection Date	Collection Date	Condition	Time Since Death/Injury	Description of Carcass/Injury	Cause of Death/Injury	Burn Grade	Unit	Nearest Project Feature	UTM Coordinates	SPUT Revisions
								singe.						
2017_046_ISEGS	Mourning Dove	MODO	Carcass Survey	5/2/2017	5/2/2017	Alive, injured	0-8 hours	Alive and injured bird found dazed at base of heliostat. Imprint matching size and shape of bird evident on heliostat mirror.	Collision with solar panel/heliostat		2	Heliostat	638508, 3936032	NA
2017_047_ISEGS	Mourning Dove	MODO	Carcass Survey	5/2/2017	5/2/2017	Feather spot	3-6 days	Feather spot size large consisting of 2 primaries, 1 secondary, 2 rectrices, 1 covert and ten contour feathers. No evidence of collision or singe.	Unknown		3	Heliostat	637536, 3938065	NA
2017_048_ISEGS	Hooded Oriole	HOOR	Incidental	5/2/2017	5/2/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass. Evidence of singe to rectrices, tips of flight feathers, right side of face, bill, and upper chest.	Scorched or singed	3	2	Powerblock	638642, 3935825	NA
2017_049_ISEGS	Mourning Dove	MODO	Carcass Survey	5/2/2017	5/2/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass with 20 loose contour feathers. Evidence of collision by matching imprint of size and shape of species.	Collision with solar panel/heliostat		2	Heliostat	639248, 3936258	NA
2017_050_ISEGS	Black-chinned Hummingbird	BCHU	Carcass Survey	5/3/2017	5/3/2017	Dead, fresh (eyes moist)	8-24 hours	Whole carcass. Evidence of singe on both flanks and left side of face. Some primaries and secondaries singed. Rects singed. Center rects curled.	Scorched or singed	3	1	Heliostat	640361, 3933384	NA
2017_051_ISEGS	Unknown Small Bird	UNID	Carcass Survey	5/3/2017	5/3/2017	Broken up	3-6 days	Broken up carcass. Whole lower half minus head.	Scorched or singed	3	1	Heliostat	640480, 3933325	NA
2017_052_ISEGS	Yellow Warbler	YWAR	Incidental	5/6/2017	5/6/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of curling to several rectrices.	Scorched or singed	1	3	Powerblock	637491, 3937905	NA
2017_053_ISEGS	Mourning Dove	MODO	Carcass Survey	5/8/2017	5/8/2017	Broken up	2 weeks	Broken up carcass consisting of partial wing of 5 primaries, median and lesser coverts held together by dried flesh. No evidence of collision or singe.	Unknown		3	Powerblock	637470, 3937983	NA
2017_054_ISEGS	Northern Rough-winged Swallow	NRWS	Carcass Survey	5/8/2017	5/8/2017	Broken up	3-6 days	Broken up carcass missing head and several contour feathers. Evidence of curling to tertials and singeing to tail feathers.	Scorched or singed	1	3	Powerblock	637479, 3937923	NA
2017_055_ISEGS	Mourning Dove	MODO	Carcass Survey	5/9/2017	5/9/2017	Alive, injured	0-8 hours	Injured bird. Evidence of collision with proximity to heliostat and observable wing strain.	Collision with solar panel/heliostat		2	Heliostat	638573, 3935648	NA
2017_056_ISEGS	Unknown Warbler	UNWA	Carcass Survey	5/9/2017	5/9/2017	Feather spot	3-6 days	Feather spot consisting of 1 primary, 2 secondaries, 1 retrix, 1 unidentified feather and 30 contour feathers. Some contour feathers singed. All flight feathers except the primary are curled.	Scorched or singed	3	1	Powerblock	640357, 3933468	NA
2017_057_ISEGS	Mourning Dove	MODO	Carcass Survey	5/9/2017	5/9/2017	Broken up	3-6 days	Broken up carcass consisting of 10 secondaries, 1 primary, 6 coverts, 35 body feathers, 1 detached foot, piece of keel. No evidence of collision or singe.	Unknown		3	Heliostat	637302, 3938080	NA
2017_058_ISEGS	Unknown Duck	UNDU	Carcass Survey	5/9/2017	5/9/2017	Broken up	2 weeks	Broken up carcass consisting of 2 secondaries, 2 underwing coverts and two SS coverts held together by skin. Singe present on edge of secondaries and tips of the underwing coverts.	Scorched or singed	Unk	1	Powerblock	640415, 3933581	NA

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2017_059_ISEGS	Unknown Sparrow	UNSP	Carcass Survey	5/9/2017	5/9/2017	Broken up	3-6 days	Broken up carcass consisting of ~20 contour feathers attached by skin. Singe present of the edges of contour feathers.	Scorched or singed	Unk	2	Heliostat	638561, 3935637	NA
2017_060_ISEGS	Wilson's Warbler	WIWA	Carcass Survey	5/15/2017	5/15/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of curling to both wings and in tail, singeing to left side of face and left flank.	Scorched or singed	3	3	Powerblock	637451, 3937883	NA
2017_061_ISEGS	Unknown Grebe	UNGR	Carcass Survey	5/16/2017	5/16/2017	Feather spot	3-6 days	Feather spot size small consisting of 40 contour feathers. No evidence of collision or singe.	Unknown		2	Powerblock	638637, 3935867	NA
2017_062_ISEGS	Unknown Small Bird	UNID	Carcass Survey	5/16/2017	5/16/2017	Broken up	1 month +	Broken up carcass consisting of partial right wing comprised of secondaries and coverts. No evidence of collision or singe.	Unknown		2	Powerblock	638638, 3935867	NA
2017_063_ISEGS	Unknown Warbler	UNWA	Carcass Survey	5/16/2017	5/16/2017	Feather spot	3-6 days	Feather spot size small consisting of 3 primaries and 9 body feathers. Evidence of singe on primary feather.	Scorched or singed	1	1	Powerblock	640356, 3933480	NA
2017_064_ISEGS	American Robin	AMRO	Carcass Survey	5/16/2017	5/16/2017	Broken up	2 weeks	Broken up carcass consisting of partial left wing comprised of outer primaries and coverts. No evidence of collision or singe.	Unknown		2	Powerblock	638591, 3935861	NA
2017_065_ISEGS	Wilson's Warbler	WIWA	Carcass Survey	5/16/2017	5/16/2017	Dead, fresh (eyes moist)	8-24 hours	Whole carcass. Evidence of curling to all major flight feathers with right primaries and refts singed off, singeing to top of head, right side of face, upper breast, and both flanks.	Scorched or singed	3	1	Powerblock	640404, 3933471	NA
2017_066_ISEGS	Unknown Shorebird	UNSB	Carcass Survey	5/17/2017	5/17/2017	Broken up	3-6 days	Broken up carcass consisting of partial right wing comprised of 5 primaries and several coverts, 20 body feathers. Evidence of singe on primaries.	Scorched or singed	1	1	Heliostat	640343, 3933377	NA
2017_067_ISEGS	Yellow-rumped Warbler	YRWA	Carcass Survey	5/17/2017	5/17/2017	Broken up	2 days	Whole carcass minus head. Evidence of singe on wings, retrices, and body.	Scorched or singed	3	1	Heliostat	640626, 3933484	NA
2017_068_ISEGS	Eared Grebe	EAGR	Carcass Survey	5/17/2017	5/17/2017	Broken up	2 days	Whole carcass with detached head. Evidence of probable collision with fresh carcass close to heliostat structure.	Collision with solar panel/heliostat		1	Heliostat	640538, 3933643	NA
2017_069_ISEGS	Unknown Small Bird	UNID	Carcass Survey	5/22/2017	5/22/2017	Feather spot	2 weeks	Feather spot size small consisting of 4 primaries and 3 coverts. No evidence of collision or singe.	Unknown		3	Heliostat	637291, 3937827	NA
2017_070_ISEGS	Unknown Dove	UNDV	Carcass Survey	5/23/2017	5/23/2017	Feather spot	3-6 days	Feather spot size small consisting of 20 body feathers. Evidence of singe on 1 body feather.	Scorched or singed	3	2	Powerblock	638577, 3935905	NA
2017_071_ISEGS	Unknown Small Bird	UNID	Carcass Survey	5/23/2017	5/23/2017	Feather spot	2 weeks	Feather spot size small consisting of 2 primary feathers. No evidence of collision or singe.	Unknown		2	Powerblock	638578, 3935907	NA
2017_072_ISEGS	Barn Swallow	BARS	Carcass Survey	5/24/2017	5/24/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	2 days	Whole carcass. Evidence of curling to primaries, secondaries, and in tail, singeing to head, back, and chest.	Scorched or singed	3	1	ACC Building	640378, 3933534	NA
2017_073_ISEGS	Unknown Small Bird	UNID	Carcass Survey	5/24/2017	5/24/2017	Broken up	3-6 days	Broken up carcass consisting of whole right wing and 1 primary from left wing.	Scorched or singed	1	1	Powerblock	640428, 3933496	NA

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								Evidence of singe on flight feathers of wing.						
2017_074_ISEGS	Eared Grebe	EAGR	Carcass Survey	5/24/2017	5/24/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of collision with imprint matching size and shape of carcass on mirror and close proximity to heliostat.	Collision with solar panel/heliostat		1	Heliostat	640490, 3933519	NA
2017_075_ISEGS	Black-Throated Sparrow	BTSP	Carcass Survey	5/25/2017	5/25/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass. Evidence of collision with imprint consisting of feather stuck to mirror, fractured upper mandible and injury to chest and wing.	Collision with solar panel/heliostat		2	Heliostat	638969, 3936957	NA
2017_076_ISEGS	Lesser Nighthawk	LENI	Incidental	5/26/2017	5/26/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass. No evidence of collision or singe.	Unknown		N/A	Administrative Laydown Area	639094, 3934963	NA
2017_077_ISEGS	Calliope Hummingbird	CAHU	Carcass Survey	5/30/2017	5/30/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of singe to bill, back, rear of head, wing coverts, and central retracts.	Scorched or singed	3	2	ACC Building	638653, 3935922	NA
2017_078_ISEGS	Wilson's Warbler	WIWA	Carcass Survey	5/30/2017	5/30/2017	Broken up	2 weeks	Carcass without head and left wing. Evidence of singe on edge of primaries and retrices.	Scorched or singed	1	2	Powerblock	638577, 3935833	NA
2017_079_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	6/1/2017	6/1/2017	Feather spot	1 month +	Feather spot size small consisting of 5 secondaries and 4 contour feathers. Evidence of singe on edge of primaries and coverts.	Scorched or singed	3	1	Powerblock	640329, 3933484	NA
2017_080_ISEGS	Lesser Nighthawk	LENI	Incidental	6/7/2017	6/7/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass. Evidence of collision with vehicle with compacted body cavity stemming from tire contact.	Collision (other)		2	Coliseum Road	639878, 3935374	NA
2017_081_ISEGS	Violet-green Swallow	VGSW	Incidental	6/14/2017	6/14/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass. Evidence of curling to all flight feathers and singe to all upperparts.	Scorched or singed	2	2	Powerblock	638660, 3935812	NA
2017_082_ISEGS	Costa's Hummingbird	COHU	Carcass Survey	6/15/2017	6/15/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	2 days	Whole carcass. Evidence of singe on left side of head.	Scorched or singed	1	2	Powerblock	638591, 3935908	NA
2017_083_ISEGS	Red-tailed Hawk	RTHA	Incidental	6/20/2017	6/21/2017	Alive, injured	0-8 hours	Injured bird. No evidence of collision or singe.	Unknown		3	Powerblock	637513, 3937917	NA
2017_084_ISEGS	Verdin	VERD	Carcass Survey	6/21/2017	6/21/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	2 days	Whole carcass. Evidence of curling to primaries and secondaries in left wing and to all tail feathers, singeing to primaries in right wing.	Scorched or singed	2	1	ACC Building	640398, 3933535	NA
2017_085_ISEGS	Unknown Swallow	UNSW	Carcass Survey	6/21/2017	6/21/2017	Feather spot	3-6 days	Feather spot size small, consisting of 3 primaries, 2 secondaries, and 10 body feathers. Evidence of curling to all flight feathers.	Scorched or singed	Unk	1	Powerblock	640356, 3933482	NA
2017_086_ISEGS	Northern Mockingbird	NOMO	Carcass Survey	6/22/2017	6/22/2017	Feather spot	2 weeks	Feather spot size large consisting of 9 retrices, 2 primaries, 4 secondaries, and 2 body feathers. No evidence of collision or singe.	Unknown		1	Heliostat	640453, 3933259	NA
2017_087_ISEGS	Unknown Small Bird	UNID	Carcass Survey	6/22/2017	6/22/2017	Broken up	3-6 days	Broken up piece of carcass consisting of 30 contour feathers held together by dried flesh. No evidence of collision or singe.	Unknown		1	Heliostat	640461, 3933676	NA

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2017_088_ISEGS	Cliff Swallow	CLSW	Incidental	6/24/2017	6/24/2017	Dead, fresh (eyes moist)	8-24 hours	Whole carcass. Evidence of curling to primaries and secondaries in both wings and tail feathers, singeing to left side of face, nape, and upper breast.	Scorched or singed	2	3	Powerblock	637481, 3937916	NA
2017_089_ISEGS	Cliff Swallow	CLSW	Incidental	6/27/2017	6/27/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass. Evidence of singeing to primaries and coverts in left wing, singe to left upper breast, nape, and side of face.	Scorched or singed	1	3	Powerblock	637510, 3937985	NA
2017_090_ISEGS	Northern Mockingbird	NOMO	Incidental	7/4/2017	7/4/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. No evidence of collision or singe.	Unknown		2	ACC Building	638652, 3935885	NA
2017_091_ISEGS	Verdin	VERD	Carcass Survey	7/10/2017	7/10/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of curling to secondaries in left wing and to rectrices, singe to primaries in right wing, top of head, and nape.	Scorched or singed	1	3	ACC Building	637496, 3937954	NA
2017_092_ISEGS	House Finch	HOFI	Carcass Survey	7/10/2017	7/10/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of curling to all flight feathers, singeing to head, nape, and back.	Scorched or singed	2	1	ACC Building	640374, 3933536	NA
2017_093_ISEGS	Anna's Hummingbird	ANHU	Carcass Survey	7/10/2017	7/10/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of curling to rectrices, singeing to primaries and secondaries, head, nape, and back.	Scorched or singed	1	1	ACC Building	640360, 3933548	NA
2017_094_ISEGS	Cliff Swallow	CLSW	Carcass Survey	7/10/2017	7/10/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. No evidence of collision or singe.	Unknown		1	ACC Building	640369, 3933554	NA
2017_095_ISEGS	Yellow Warbler	YWAR	Carcass Survey	7/10/2017	7/10/2017	Feather spot	3-6 days	Feather spot size small consisting of 15 body feathers, 2 rectrices, 1 primary. No evidence of collision or singe.	Unknown		3	Powerblock	637465, 3937920	NA
2017_096_ISEGS	Northern Mockingbird	NOMO	Carcass Survey	7/10/2017	7/10/2017	Feather spot	2 weeks	Feather spot size large consisting of 10 secondaries, 3 tertials, 7 primaries, 9 retrices, and 1 contour feather. Singe found on tip of primary.	Scorched or singed	Unk	1	Powerblock	640359, 3933547	NA
2017_097_ISEGS	Verdin	VERD	Carcass Survey	7/10/2017	7/10/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of curling to primaries and secondaries in right wing, secondaries in left wing and coverts in both wings.	Scorched or singed	1	3	Powerblock	637462, 3937931	NA
2017_098_ISEGS	Black-Throated Sparrow	BTSP	Carcass Survey	7/10/2017	7/10/2017	Broken up	3-6 days	Broken up carcass consisting of left leg, partial left and right wing. 12 primaries, 5 retrices and 30+ body feathers. Tips of flight feathers singed.	Scorched or singed	Unk	1	Powerblock	640381, 3933511	NA
2017_099_ISEGS	Northern Mockingbird	NOMO	Carcass Survey	7/10/2017	7/10/2017	Feather spot	3-6 days	Feather spot size large consisting of 12 retrices, 17 primaries, 11 secondaries, and 5 contour feathers. Evidence of singe on tips of primaries.	Scorched or singed	Unk	1	Powerblock	640415, 3933482	NA
2017_100_ISEGS	Black-Throated Sparrow	BTSP	Carcass Survey	7/10/2017	7/10/2017	Broken up	2 weeks	Broken up carcass consisting of partial left wing, 3 retrices, 4 primaries and 4 contour. Evidence of singe on retrices.	Scorched or singed	Unk	1	Powerblock	640376, 3933490	NA

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2017_101_ISEGS	Unknown Swallow	UNSW	Carcass Survey	7/10/2017	7/10/2017	Broken up	2 weeks	Broken up carcass consisting of partial right wing of 5 primaries and 2 secondaries held together by dried flesh. No evidence of collision or singe.	Unknown		1	Powerblock	640311, 3933474	NA
2017_102_ISEGS	Unknown Warbler	UNWA	Carcass Survey	7/10/2017	7/10/2017	Broken up	1 month +	Broken up carcass consisting of very old body with missing head and left wing. No evidence of collision or singe.	Unknown		3	Powerblock	637469, 3937915	NA
2017_103_ISEGS	Unknown Small Bird	UNID	Carcass Survey	7/10/2017	7/10/2017	Broken up	1 month +	Broken up carcass consisting of partial right wing. No evidence of collision or singe.	Unknown		3	Powerblock	637455, 3937934	NA
2017_104_ISEGS	Mourning Dove	MODO	Carcass Survey	7/11/2017	7/11/2017	Feather spot	2 weeks	Feather spot size large consisting of 7 retrices, 2 primaries, 4 secondaries, 5 contour feathers, and 1 covert. No evidence of collision or singe.	Unknown		3	Heliostat	637435, 3937736	NA
2017_105_ISEGS	Costa's Hummingbird	COHU	Carcass Survey	7/12/2017	7/12/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	2 days	Whole carcass. Evidence of singe on the ends of primaries on right wing and on central retrices plus lower right flank.	Scorched or singed	3	2	ACC Building	638642, 3935882	NA
2017_106_ISEGS	Black-Throated Sparrow	BTSP	Carcass Survey	7/12/2017	7/12/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of collision with tip of top mandible broken off and apparent evidence of break to back of skull.	Collision with solar panel/heliostat		2	ACC Building	638693, 3935913	NA
2017_107_ISEGS	Tree Swallow	TRES	Carcass Survey	7/12/2017	7/12/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass. Evidence of curling to primary and secondary coverts on right wing, singe on nape and rump.	Scorched or singed	1	2	Powerblock	638618, 3935832	NA
2017_108_ISEGS	Unknown Swallow	UNSW	Incidental	7/18/2017	7/18/2017	Broken up	3-6 days	Broken up carcass consisting of head, left and right partial wings, torso partial tail and 50+ body feathers. Curling of primary flight feathers.	Scorched or singed	Unk	2	Powerblock	638601, 3935813	NA
2017_109_ISEGS	Bullock's Oriole	BUOR	Incidental	7/28/2017	7/28/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass. Evidence of curling to primaries and secondaries in right wing, singe to top of head, upper breast and throat, and right axillary.	Scorched or singed	1	1	Powerblock	640344, 3933469	NA
2017_110_ISEGS	Tree Swallow	TRES	Incidental	7/28/2017	7/28/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass. Evidence of curling to primaries and secondaries in right wing and in tail, singe to rump, right side of back all the way up to nape, and coverts.	Scorched or singed	2	1	Powerblock	640316, 3933451	NA
2017_111_ISEGS	Tree Swallow	TRES	Carcass Survey	7/31/2017	7/31/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. No evidence of collision or singe.	Unknown		1	ACC Building	640429, 3933558	NA
2017_112_ISEGS	Northern Mockingbird	NOMO	Incidental	7/31/2017	7/31/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of singe to all parts of carcass with majority of flight feathers in both wings and tail being singed off.	Scorched or singed	2	3	Powerblock	637424, 3937925	NA
2017_113_ISEGS	Bullock's Oriole	BUOR	Incidental	7/31/2017	7/31/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of curling to primaries and secondaries in right wing, singeing to right side of nape and auricular.	Scorched or singed	1	3	Powerblock	637463, 3937903	NA
2017_114_ISEGS	Cliff Swallow	CLSW	Carcass	7/31/2017	7/31/2017	Mummified	1 month +	Whole carcass. Evidence of curling to flight	Scorched or singed	2	1	ACC Building	640434,	NA

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			Survey					feathers in both wings and in tail, singe to coverts and upper breast.					3933529	
2017_115_ISEGS	Verdin	VERD	Carcass Survey	7/31/2017	7/31/2017	Mummified	2 weeks	Whole carcass. Primaries curled with singe present on head and back.	Scorched or singed	1	3	ACC Building	637486, 3937945	NA
2017_116_ISEGS	Unknown Hummingbird	UNHU	Carcass Survey	7/31/2017	7/31/2017	Mummified	2 weeks	Whole carcass. All flight feathers curled or singed off. 90% of body singed.	Scorched or singed	2	3	ACC Building	637501, 3937958	NA
2017_117_ISEGS	Western Tanager	WETA	Carcass Survey	7/31/2017	7/31/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass. Evidence of singe. Primaries curled. Coverts and retricies singed. Singe on face.	Scorched or singed	Unk	3	ACC Building	637465, 3937959	NA
2017_118_ISEGS	Rufous Hummingbird	RUHU	Carcass Survey	7/31/2017	7/31/2017	Dead, fresh (eyes moist)	8-24 hours	Whole carcass. Evidence of singe on face and tail.	Scorched or singed	1	3	ACC Building	637461, 3937958	NA
2017_119_ISEGS	Unknown Small Bird	UNID	Carcass Survey	7/31/2017	7/31/2017	Feather spot	3-6 days	Feather spot size small consisting of 8 body feathers, 1 secondary, 1 retrix. Evidence of singe on tip of retrix.	Scorched or singed	1	1	Powerblock	640419, 3933483	NA
2017_120_ISEGS	Yellow Warbler	YWAR	Carcass Survey	7/31/2017	7/31/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass. Evidence of singe in the secondaries and tail feathers	Scorched or singed	1	3	Powerblock	637434, 3937879	NA
2017_121_ISEGS	Unknown Swallow	UNSW	Carcass Survey	7/31/2017	7/31/2017	Feather spot	3-6 days	Featherspot consisting of 2 primaries. No evidence of singe.	Unknown		1	Powerblock	640354, 3933508	NA
2017_122_ISEGS	Yellow Warbler	YWAR	Carcass Survey	7/31/2017	7/31/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass. Primaries, secondaries, and retricies singed off. Head, nape, back, and rump show heavy singe.	Scorched or singed	Unk	3	Powerblock	637442, 3937874	NA
2017_123_ISEGS	Northern Mockingbird	NOMO	Carcass Survey	7/31/2017	7/31/2017	Feather spot	2 weeks	Feather spot size large consisting of 3 retrices, 1 secondary, and 1 primary. No evidence of collision or singe.	Unknown		1	Powerblock	640355, 3933509	NA
2017_124_ISEGS	Unknown Small Bird	UNID	Carcass Survey	7/31/2017	7/31/2017	Feather spot	1 month +	Feather spot size small consisting of 5 primaries and 5 body feathers. Evidence of singe on primary feathers.	Scorched or singed	Unk	1	Powerblock	640359, 3933508	NA
2017_125_ISEGS	Unknown Swallow	UNSW	Carcass Survey	7/31/2017	7/31/2017	Broken up	3-6 days	Broken up carcass consisting of 2 primaries and coverts connected by skin. Evidence of singe at the base of the primaries.	Scorched or singed	Unk	3	Powerblock	637459, 3937933	NA
2017_126_ISEGS	Unknown Small Bird	UNID	Carcass Survey	7/31/2017	7/31/2017	Feather spot	3-6 days	Feather spot size small consisting of 3 retrices, 1 primary, and 1 secondary. No evidence of collision or singe.	Unknown		1	Powerblock	640360, 3933507	NA
2017_127_ISEGS	American Kestrel	AMKE	Carcass Survey	7/31/2017	7/31/2017	Feather spot	3-6 days	Feather spot small consisting of 10 retrices, 4 primaries, 2 secondaries, 15 coverts, and 40 body feathers. Evidence of singe on several primaries and 1 retrix.	Scorched or singed	1	1	Powerblock	640287, 3933537	NA
2017_128_ISEGS	Unknown Small Bird	UNID	Carcass Survey	7/31/2017	7/31/2017	Feather spot	3-6 days	Feather spot size small consisting of 3 primaries, 1 coverts, and 3 secondaries. No evidence of collision or singe.	Unknown		1	Powerblock	640287, 3933536	NA
2017_129_ISEGS	Northern Rough-winged Swallow	NRWS	Carcass Survey	8/1/2017	8/1/2017	Feather spot	3-6 days	Feather spot size small consisting of 2 primaries and 2 secondaries. Evidence of singe on a secondary.	Scorched or singed	1	3	Heliostat	637379, 3937760	NA
2017_130_ISEGS	Blue-winged Teal	BWTE	Carcass Survey	8/1/2017	8/1/2017	Feather spot	3-6 days	Feather spot size large consisting of 3 primaries, 2 secondaries, and 6 contour feathers. Evidence of singe on flight feather.	Scorched or singed	Unk	3	Heliostat	637372, 3937793	NA
2017_131_ISEGS	Tree Swallow	TRES	Carcass Survey	8/2/2017	8/2/2017	Dead, Semi-fresh (eyes	3-6 days	Whole carcass. Evidence of curling to all flight feathers with rectrices singed off,	Scorched or singed	2	2	ACC Building	638651, 3935907	NA

USFWS #	Common Name	Species Code	How Found	Detection Date	Collection Date	Condition	Time Since Death/Injury	Description of Carcass/Injury	Cause of Death/Injury	Burn Grade	Unit	Nearest Project Feature	UTM Coordinates	SPUT Revisions
						desiccated, rigor mortis)		singe to back and top of head.						
2017_132_ISEGS	Black-tailed Gnatcatcher	BTGN	Carcass Survey	8/2/2017	8/2/2017	Mummified	2 weeks	Whole carcass. Evidence of curling to all flight feathers, head, neck, and crown singed.	Scorched or singed	2	2	ACC Building	638665, 3935904	NA
2017_133_ISEGS	Yellow Warbler	YWAR	Incidental	8/2/2017	8/2/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass. Evidence of curling to all flight feathers, singe to nape.	Scorched or singed	2	3	Powerblock	637479, 3937950	NA
2017_134_ISEGS	Black-throated Sparrow	BTSP	Incidental	8/2/2017	8/2/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass. Evidence of curling to rectes and primaries, singe to breast.	Scorched or singed	2	3	Powerblock	637451, 3937966	NA
2017_135_ISEGS	Lazuli Bunting	LAZB	Incidental	8/2/2017	8/2/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass. Evidence of singe to all upperparts with all flight feathers singed off.	Scorched or singed	2	3	Powerblock	637435, 3937896	NA
2017_136_ISEGS	Black-tailed Gnatcatcher	BTGN	Incidental	8/2/2017	8/2/2017	Broken up	2 weeks	Broken up carcass consisting of torso with detached head and missing tail. Evidence of curling to primaries and singe to crown.	Scorched or singed	1	3	Powerblock	637423, 3937908	NA
2017_137_ISEGS	Northern Rough-winged Swallow	NRWS	Incidental	8/2/2017	8/2/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass. Evidence of curling to all flight feathers, singe to head, back, flanks, and rump.	Scorched or singed	2	3	Powerblock	637478, 3937910	NA
2017_138_ISEGS	Northern Rough-winged Swallow	NRWS	Incidental	8/2/2017	8/2/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass. Evidence of curling to all flight feathers, singeing to breast and upperparts.	Scorched or singed	2	3	Powerblock	637435, 3937898	NA
2017_139_ISEGS	Northern Rough-winged Swallow	NRWS	Carcass Survey	8/3/2017	8/3/2017	Broken up	2 weeks	Broken up carcass consisting of partial right wing, group of secondaries held together by dried flesh, pieces of leg bones and skeleton, 2 primaries, 13 secondaries, 50 body feathers. No evidence of collision or singe.	Unknown		2	Heliostat	638825, 3935728	NA
2017_140_ISEGS	Unknown Grebe	UNGR	Carcass Survey	8/3/2017	8/3/2017	Broken up	2 weeks	Broken up carcass consisting of partial right wing. No evidence of collision or singe.	Unknown		2	Heliostat	638586, 3936084	NA
2017_141_ISEGS	Western Tanager	WETA	Carcass Survey	8/3/2017	8/3/2017	Broken up	2 days	Broken up carcass consisting of partial left and right wing, partial tail, 50 body feathers, 4 primaries, 8 secondaries, and 1 retrix. Evidence of curling to primary flight feathers, singe to retrices and secondaries.	Scorched or singed	Unk	2	Heliostat	638428, 3935813	NA
2017_142_ISEGS	Lesser Nighthawk	LENI	Incidental	8/3/2017	8/3/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	8-24 hours	Whole carcass. No evidence of collision or singe.	Unknown		N/A	Coliseum Road	640586, 3935350	NA
2017_143_ISEGS	Unknown Swallow	UNSW	Carcass Survey	8/4/2017	8/4/2017	Feather spot	3-6 days	Feather spot size large consisting of 2 primaries. Evidence of singe on primary feather.	Scorched or singed	Unk	1	Heliostat	640250, 3933319	NA
2017_144_ISEGS	Mourning Dove	MODO	Carcass Survey	8/4/2017	8/4/2017	Feather spot	2 weeks	Feather spot size large consisting of 4 retrices, 2 primaries, 1 secondary, 1 covert. No evidence of collision or singe.	Unknown		1	Heliostat	640213, 3933348	NA
2017_145_ISEGS	Unknown Swallow	UNSW	Carcass Survey	8/4/2017	8/4/2017	Broken up	2 weeks	Broken up carcass consisting of partial right wing held together by dried flesh, 1 secondary. No evidence of collision or singe.	Unknown		1	Heliostat	640270, 3933342	NA

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2017_146_ISEGS	Unknown Swallow	UNSW	Carcass Survey	8/4/2017	8/4/2017	Feather spot	3-6 days	Feather spot size small consisting of 2 primaries, 1 secondary, 2 flight feathers, 40 contour feathers. Evidence of curling to all flight feathers, singe to contour feathers.	Scorched or singed	1	1	Heliostat	640378, 3933674	NA
2017_147_ISEGS	Greater Roadrunner	GRRO	Incidental	8/4/2017	8/4/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass with 150 loose feathers. No evidence of collision or singe.	Unknown		3	Fence	636256, 3937464	NA
2017_148_ISEGS	Cliff Swallow	CLSW	Incidental	8/7/2017	8/7/2017	Mummified	1 month +	Whole carcass. Singe on edge of primary feathers.	Scorched or singed	1	1	Powerblock	640373, 3933487	NA
2017_149_ISEGS	Black-Throated Sparrow	BTSP	Incidental	8/7/2017	8/7/2017	Mummified	2 weeks	Whole carcass. Singe on primaries, secondaries and tail.	Scorched or singed	1	1	Powerblock	640373, 3933487	NA
2017_150_ISEGS	Black-Throated Sparrow	BTSP	Incidental	8/7/2017	8/7/2017	Dead, fresh (eyes moist)	8-24 hours	Whole carcass. All feathers singed, flight feathers missing from singe damage.	Scorched or singed	2	1	Powerblock	640373, 3933487	NA
2017_151_ISEGS	Unknown Swallow	UNSW	Incidental	8/7/2017	8/7/2017	Mummified	1 month +	Whole carcass. All feathers, excepting neck, with singe.	Scorched or singed	2	1	Powerblock	640373, 3933487	NA
2017_152_ISEGS	Tree Swallow	TRES	Incidental	8/7/2017	8/7/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Tail feathers curled. Rump singed. Two primaries on right wing curled.	Scorched or singed	1	1	Powerblock	640373, 3933487	NA
2017_153_ISEGS	Tree Swallow	TRES	Incidental	8/7/2017	8/7/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Singe on rump. Three coverts on left wing curled.	Scorched or singed	1	1	Powerblock	640373, 3933487	NA
2017_154_ISEGS	Black-Throated Sparrow	BTSP	Incidental	8/7/2017	8/7/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	2 days	Whole carcass. Tail with singe.	Scorched or singed	1	1	Powerblock	640373, 3933487	NA
2017_155_ISEGS	Tree Swallow	TRES	Incidental	8/7/2017	8/7/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass. Primaries and secondaries curled. Head, nape, back and rump singed.	Scorched or singed	2	3	Powerblock	637398, 3937993	NA
2017_156_ISEGS	Black-Throated Sparrow	BTSP	Incidental	8/15/2017	8/15/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	2 weeks	Whole carcass. Evidence of singe to crown and upper breast.	Scorched or singed	3	2	Powerblock	638647, 3935868	NA
2017_157_ISEGS	Unknown Small Bird	UNID	Incidental	8/15/2017	8/15/2017	Broken up	2 weeks	Broken up carcass consisting of partial body part with dried skin attached and dried blood present. Evidence of curling to several body/contour feathers on body part.	Scorched or singed	1	3	Powerblock	637487, 3937914	NA
2017_158_ISEGS	Unknown Warbler	UNWA	Incidental	8/18/2017	8/18/2017	Dead, fresh (eyes moist)	8-24 hours	Whole carcass. Evidence of singe to all parts of body except for lower flanks, all flight feathers singed off.	Scorched or singed	2	2	Powerblock	638660, 3935845	NA
2017_159_ISEGS	Brown-headed Cowbird	BHCO	Incidental	8/18/2017	8/18/2017	Mummified	2 weeks	Whole carcass. Evidence of curling to primary flight feathers and singed upper left breast.	Scorched or singed	1	2	Powerblock	638625, 3935828	NA
2017_160_ISEGS	Chipping Sparrow	CHSP	Incidental	8/20/2017	8/20/2017	Dead, fresh (eyes moist)	8-24 hours	Whole carcass. Evidence of curling to all flight feathers in both wings and tail, singe to coverts, crown, nape, entire back, and rump.	Scorched or singed	2	2	Powerblock	638606, 3935847	NA

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2017_161_ISEGS	Cliff Swallow	CLSW	Incidental	8/20/2017	8/20/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	2 days	Whole carcass. Evidence of curling to flight feathers in both wings, singe to top of head, left side of nape and flank, throat, and end of rects.	Scorched or singed	2	2	Powerblock	638614, 3935900	NA
2017_162_ISEGS	Unknown Teal	TEAL	Carcass Survey	8/21/2017	8/21/2017	Feather spot	3-6 days	Feather spot size large consisting of 70 body feathers, 5 primaries, 7 secondaries, 4 trailing secondaries, 7 retrices. No evidence of collision or singe.	Unknown		3	Heliostat	637422, 3937739	NA
2017_163_ISEGS	Unknown Warbler	UNWA	Carcass Survey	8/21/2017	8/21/2017	Broken up	2 days	Broken up carcass consisting of partial left wing and 10 body feathers. Evidence of singe to several flight and body feathers.	Scorched or singed	Unk	3	Heliostat	637439, 3937758	NA
2017_164_ISEGS	White-throated Swift	WTSW	Carcass Survey	8/21/2017	8/21/2017	Feather spot	3-6 days	Feather spot size large consisting of 4 primaries, 2 secondaries, 3 retrices. Evidence of singe on all feathers.	Scorched or singed	Unk	3	Heliostat	637581, 3938073	NA
2017_165_ISEGS	Yellow Warbler	YWAR	Carcass Survey	8/22/2017	8/22/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	2 days	Whole carcass. Evidence of curling to primaries, singe to rects.	Scorched or singed	1	3	ACC Building	637490, 3937954	NA
2017_166_ISEGS	Yellow Warbler	YWAR	Carcass Survey	8/22/2017	8/22/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	2 days	Whole carcass. Evidence of curling to primaries and retrices, singe to top of head and back and tail.	Scorched or singed	2	3	ACC Building	637477, 3937972	NA
2017_167_ISEGS	Brown-headed Cowbird	BHCO	Carcass Survey	8/22/2017	8/22/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of singe to upper breast/lower throat area and to both axillaries.	Scorched or singed	3	3	ACC Building	637474, 3937972	NA
2017_168_ISEGS	Yellow Warbler	YWAR	Carcass Survey	8/22/2017	8/22/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass. Evidence of curling to flight feathers in both wings and end of rects, singe to coverts, top of head, right axillary.	Scorched or singed	2	3	Powerblock	637423, 3937897	NA
2017_169_ISEGS	Unknown Small Bird	UNID	Carcass Survey	8/22/2017	8/22/2017	Broken up	2 days	Broken up carcass consisting of partial left wing, 2 secondaries, 1 body feather. Evidence of curling to secondaries.	Scorched or singed	Unk	2	Powerblock	638626, 3935906	NA
2017_170_ISEGS	Black-tailed Gnatcatcher	BTGN	Carcass Survey	8/22/2017	8/22/2017	Mummified	2 weeks	Whole carcass. Evidence of curling to primaries and retrices, singeing to shoulders.	Scorched or singed	2	3	Powerblock	637460, 3937931	NA
2017_171_ISEGS	Unknown Small Bird	UNID	Carcass Survey	8/22/2017	8/22/2017	Feather spot	3-6 days	Feather spot size small consisting of 12 body feathers, 1 covert. Evidence of singe on the body feathers.	Scorched or singed	Unk	3	Powerblock	637451, 3937933	NA
2017_172_ISEGS	Unknown Swallow	UNSW	Carcass Survey	8/22/2017	8/22/2017	Broken up	3-6 days	Broken up carcass consisting of 2 primaries, 2 alula feathers, and 1 covert attached together by dried skin. Evidence of singe to 1 primary.	Scorched or singed	1	3	Powerblock	637452, 3937932	NA
2017_173_ISEGS	Northern Rough-winged Swallow	NRWS	Carcass Survey	8/22/2017	8/22/2017	Broken up	3-6 days	Broken up carcass consisting of right wing. Evidence of singe to secondaries.	Scorched or singed	Unk	3	Powerblock	637383, 3937964	NA
2017_174_ISEGS	Rock Pigeon	ROPI	Carcass Survey	8/22/2017	8/22/2017	Alive, injured	0-8 hours	Alive bird. Evidence of singeing to tail and wings, right eye and right side of face.	Scorched or singed	2	2	Powerblock	638567, 3935832	NA
2017_175_ISEGS	Yellow Warbler	YWAR	Carcass Survey	8/23/2017	8/23/2017	Dead, Semi-fresh (eyes	3-6 days	Whole carcass. Evidence of curling to primaries and 3 retrices, singe to crown	Scorched or singed	2	1	ACC Building	640378, 3933561	NA

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						desiccated, rigor mortis)		and flanks.						
2017_176_ISEGS	Nashville Warbler	NAWA	Carcass Survey	8/23/2017	8/23/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	2 days	Whole carcass. Evidence of curling to primaries and rectrices, singeing to crown.	Scorched or singed	1	1	ACC Building	640376, 3933547	NA
2017_177_ISEGS	Tree Swallow	TRES	Carcass Survey	8/23/2017	8/23/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of curling to primaries and secondaries, singe to underparts, back, and flanks with rects singed off.	Scorched or singed	2	1	ACC Building	640380, 3933543	NA
2017_178_ISEGS	Brown-headed Cowbird	BHCO	Carcass Survey	8/23/2017	8/23/2017	Dead, fresh (eyes moist)	8-24 hours	Whole carcass. Evidence of curling to primaries and secondaries, singe to head, body, and flanks with rects singed off.	Scorched or singed	2	1	ACC Building	640397, 3933538	NA
2017_179_ISEGS	Northern Rough-winged Swallow	NRWS	Carcass Survey	8/23/2017	8/23/2017	Broken up	2 weeks	Broken up carcass consisting of partial right wing, 50 body feathers, 7 rectrices, 7 secondaries, 9 primaries. Evidence of curling to primaries and secondaries, singe to body feathers.	Scorched or singed	Unk	2	Heliostat	638515, 3936006	NA
2017_180_ISEGS	Lazuli Bunting	LAZB	Incidental	8/26/2017	8/26/2017	Alive, injured	0-8 hours	Alive, injured bird. Evidence of curling to secondaries on both wings and to rectrices, singe to left side of face.	Scorched or singed	2	3	Powerblock	637460, 3937964	NA
2017_181_ISEGS	Northern Rough-winged Swallow	NRWS	Incidental	8/26/2017	8/26/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass. Evidence of curling to all major flight feathers in both wings and tail and to primary coverts in both wings.	Scorched or singed	2	3	Powerblock	637423, 3937938	NA
2017_182_ISEGS	Yellow Warbler	YWAR	Incidental	8/26/2017	8/26/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass. Evidence of curling to all flight feathers and primary coverts in both wings and tail, singe to left side of nape and face.	Scorched or singed	2	3	Powerblock	637438, 3937963	NA
2017_183_ISEGS	Unknown Warbler	UNWA	Incidental	8/28/2017	8/28/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of singe to all parts of body except throat with all major flight feathers singed off.	Scorched or singed	2	2	Powerblock	638643, 3935863	NA
2017_184_ISEGS	Brown-headed Cowbird	BHCO	Carcass Survey	8/28/2017	8/28/2017	Feather spot	3-6 days	Feather spot size large consisting of 3 primaries, 6 secondaries, 8 rectrices, and 44 contour feathers. No evidence of collision or singe.	Unknown		3	Heliostat	637423, 3938098	NA
2017_185_ISEGS	Yellow Warbler	YWAR	Carcass Survey	8/29/2017	8/29/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	2 days	Whole carcass. Evidence of curling to primaries, singe to rects and head.	Scorched or singed	2	3	ACC Building	637498, 3937945	NA
2017_186_ISEGS	Brewer's Sparrow	BRSP	Carcass Survey	8/29/2017	8/29/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass. Evidence of curling to all flight feathers, singe to head, back, rump, breast, and flanks.	Scorched or singed	2	3	ACC Building	637490, 3937959	NA
2017_187_ISEGS	Brewer's Sparrow	BRSP	Carcass Survey	8/29/2017	8/29/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass. Evidence of curling to all flight feathers, singe to flanks, breast, and rump.	Scorched or singed	2	3	ACC Building	637468, 3937959	NA
2017_188_ISEGS	Unknown Swallow	UNSW	Carcass Survey	8/29/2017	8/29/2017	Dead, Semi-fresh (eyes desiccated,	2 days	Whole carcass. Evidence of curling to all flight and tail feathers, neck, head, and back singed.	Scorched or singed	2	3	ACC Building	637475, 3937972	NA

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						rigor mortis)								
2017_189_ISEGS	Hermit Warbler	HEWA	Carcass Survey	8/29/2017	8/29/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	2 days	Whole carcass. Evidence of curling to all flight feathers in both wings and tail, lower mandible broken.	Scorched or singed	2	3	ACC Building	637496, 3937985	NA
2017_190_ISEGS	Unknown Small Bird	UNID	Carcass Survey	8/29/2017	8/29/2017	Broken up	2 weeks	Broken up carcass consisting of middle part of left wing with secondaries and coverts. Evidence of singe on coverts and leading edge of secondaries.	Scorched or singed	1	3	Powerblock	637384, 3937961	NA
2017_191_ISEGS	Yellow Warbler	YWAR	Carcass Survey	8/29/2017	8/29/2017	Broken up	3-6 days	Broken up carcass consisting of 13 primaries, 15 secondaries, 6 rects, 75 contour feathers and skull. No evidence of collision or singe.	Scorched or singed	Unk	2	Heliostat	638476, 3936000	NA
2017_192_ISEGS	Bank Swallow	BANS	Carcass Survey	8/29/2017	8/29/2017	Broken up	3-6 days	Broken up carcass consisting of partial torso including right wing, several primaries of left wing still attached to cavity and right leg present. Evidence of possible collision with apparent injury to cavity and location where found.	Collision (other)		3	ACC Building	637509, 3937954	NA
2017_193_ISEGS	American Kestrel	AMKE	Carcass Survey	8/29/2017	8/29/2017	Broken up	2 weeks	Broken up carcass consisting of outer portions of both wings, 2 bones, 10 contour feathers. Evidence of curling to primaries and primary coverts, remaining coverts singed.	Scorched or singed	1	3	Powerblock	637371, 3937960	NA
2017_194_ISEGS	Yellow Warbler	YWAR	Carcass Survey	8/29/2017	8/29/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	2 days	Whole carcass. Evidence of singe on top of head.	Scorched or singed	3	3	Powerblock	637444, 3937855	NA
2017_195_ISEGS	Unknown Small Bird	UNID	Carcass Survey	8/29/2017	8/29/2017	Feather spot	2 weeks	Feather spot size small consisting of 20 coverts. No evidence of collision or singe.	Unknown		3	Powerblock	637453, 3937913	NA
2017_196_ISEGS	Wilson's Warbler	WIWA	Carcass Survey	8/29/2017	8/29/2017	Dead, fresh (eyes moist)	8-24 hours	Whole carcass. Evidence of singe to right side of nape, upper breast, right axillary and flank with all flight feathers singed off.	Scorched or singed	2	3	Powerblock	637493, 3937940	NA
2017_197_ISEGS	Unknown Warbler	UNWA	Carcass Survey	8/29/2017	8/29/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of singe to head, face, and lower back.	Scorched or singed	Unk	3	Powerblock	637505, 3937937	NA
2017_198_ISEGS	Nashville Warbler	NAWA	Carcass Survey	8/30/2017	8/30/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of singe on front of forehead.	Scorched or singed	3	2	ACC Building	638674, 3935897	NA
2017_199_ISEGS	Unknown Warbler	UNWA	Carcass Survey	8/30/2017	8/30/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of singe to entire body with all major flight feathers singed off.	Scorched or singed	2	2	ACC Building	638652, 3935897	NA
2017_200_ISEGS	Unknown Sparrow	UNSP	Carcass Survey	8/30/2017	8/30/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of curling to all major flight feathers and singe to entire body except for breast and belly.	Scorched or singed	2	2	ACC Building	638641, 3935895	NA

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2017_201_ISEGS	Unknown Swallow	UNSW	Incidental	8/30/2017	8/30/2017	Mummified	1 month +	Whole carcass. Evidence of curling to primaries, secondaries, and rects, singe to contour feathers on back and head.	Scorched or singed	2	2	Powerblock	638664, 3935863	NA
2017_202_ISEGS	Unknown Small Bird	UNID	Carcass Survey	8/30/2017	8/30/2017	Feather spot	3-6 days	Feather spot size large consisting of 8 retrices, 6 primaries, 9 secondaries, 8 unidentified flight feathers, 2 contour feathers. Evidence of curling to flight feathers.	Scorched or singed	1	2	Powerblock	638566, 3935895	NA
2017_203_ISEGS	Unknown Hummingbird	UNHU	Carcass Survey	8/30/2017	9/12/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of curling to 2 primaries with flight feathers in tail singed off, singe to all parts of body.	Scorched or singed	2	2	ACC Building	638657, 3935908	NA
2017_204_ISEGS	Unknown Small Bird	UNID	Carcass Survey	8/30/2017	8/30/2017	Feather spot	3-6 days	Feather spot size of 13 body feathers, 2 coverts, 2 unidentified flight feathers. Evidence of singe on flight feathers and coverts.	Scorched or singed	Unk	2	Powerblock	638695, 3935878	NA
2017_205_ISEGS	Townsend's Warbler	TOWA	Carcass Survey	8/30/2017	8/30/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass. No evidence of collision or singe.	Unknown		2	Powerblock	638653, 3935845	NA
2017_206_ISEGS	Mourning Dove	MODO	Incidental	8/30/2017	8/30/2017	Alive, injured	0-8 hours	Alive bird. Appeared dehydrated.	N/A		3	Powerblock	637501, 3937899	NA
2017_207_ISEGS	Yellow Warbler	YWAR	Carcass Survey	8/31/2017	8/31/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of curling to all flight feathers in wing and tail, singe to top of head, nape, back, rump, and left axillary.	Scorched or singed	2	1	ACC Building	640412, 3933521	NA
2017_208_ISEGS	Northern Rough-winged Swallow	NRWS	Carcass Survey	8/31/2017	8/31/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	2 days	Whole carcass. No evidence of collision or singe.	Unknown		1	ACC Building	640386, 3933522	NA
2017_209_ISEGS	Rufous Hummingbird	RUHU	Carcass Survey	8/31/2017	8/31/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	2 days	Whole carcass. Evidence of curling to retrices, singe to tips of primaries, top of head, nape, back, rump, left flanks and side of face.	Scorched or singed	1	1	ACC Building	640362, 3933521	NA
2017_210_ISEGS	Western Tanager	WETA	Carcass Survey	8/31/2017	8/31/2017	Feather spot	3-6 days	Feather spot size large consisting of 13 primaries, 10 secondaries, 8 retrices, and 100 contour feathers. Evidence of singe to tips of primaries, secondaries, and to rect feathers.	Scorched or singed	1	1	Heliostat	640199, 3933335	NA
2017_211_ISEGS	Brown-headed Cowbird	BHCO	Carcass Survey	8/31/2017	8/31/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of curling to flight feathers in wings and tail, singe to head, nape, rump, and throat.	Scorched or singed	2	1	ACC Building	640399, 3933534	NA
2017_212_ISEGS	Unknown Swallow	UNSW	Carcass Survey	8/31/2017	8/31/2017	Broken up	2 weeks	Broken up carcass consisting of outermost portion of right wing, 1 left primary, 5 contour feathers. Evidence of singe on primaries.	Scorched or singed	1	1	Powerblock	640363, 3933493	NA
2017_213_ISEGS	Northern Mockingbird	NOMO	Carcass Survey	8/31/2017	8/31/2017	Broken up	3-6 days	Broken up carcass consisting of 6 primaries with several held together by dried flesh, 1 retrix, and 5 coverts. Evidence of singe on 4 primaries.	Scorched or singed	Unk	1	Powerblock	640354, 3933502	NA

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2017_214_ISEGS	Brown-headed Cowbird	BHCO	Carcass Survey	8/31/2017	8/31/2017	Dead, fresh (eyes moist)	8-24 hours	Whole carcass. Evidence of collision by tip of broken bill and close proximity to heliostat mirror.	Collision with solar panel/heliostat		1	Heliostat	640597, 3933522	NA
2017_215_ISEGS	Unknown Small Bird	UNID	Carcass Survey	8/31/2017	8/31/2017	Feather spot	2 weeks	Feather spot size large consisting of 5 primaries, 2 secondaries, and 5 coverts. No evidence of collision or singe.	Unknown		1	Heliostat	640330, 3933364	NA
2017_216_ISEGS	Black-Throated Sparrow	BTSP	Incidental	9/1/2017	9/1/2017	Mummified	2 weeks	Whole carcass. Evidence of singe to all parts of body with flight feathers in both wings and tail singed off.	Scorched or singed	2	3	Powerblock	637487, 3937914	NA
2017_217_ISEGS	Tree Swallow	TRES	Incidental	9/1/2017	9/1/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of singe to back, both axillaries, nape, rump, with flight feathers in tail and majority in wings singed off.	Scorched or singed	2	3	Powerblock	637487, 3937914	NA
2017_218_ISEGS	Black-Throated Sparrow	BTSP	Incidental	9/1/2017	9/1/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of singe on back, head, nape, tail, and throat, with all flight feathers in tail and majority in wings singed off.	Scorched or singed	2	3	Powerblock	637487, 3937914	NA
2017_219_ISEGS	Brown-headed Cowbird	BHCO	Incidental	9/1/2017	9/1/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of curling to flight feathers in both wings and tail, singe to forehead, axillaries, and breast.	Scorched or singed	2	3	Powerblock	637487, 3937914	NA
2017_220_ISEGS	Bullock's Oriole	BUOR	Incidental	9/1/2017	9/1/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. No evidence of singe or collision.	Unknown		3	Powerblock	637487, 3937914	NA
2017_221_ISEGS	Brewer's Sparrow	BRSP	Carcass Survey	9/5/2017	9/5/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass. Evidence of curling to all flight feathers in tail and both wings, singe to head, rump, and flanks.	Scorched or singed	2	3	ACC Building	637459, 3937947	NA
2017_222_ISEGS	Yellow Warbler	YWAR	Carcass Survey	9/5/2017	9/5/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of singe to all flight feathers in wing, head, back, flanks, with all feathers in tail singed off.	Scorched or singed	2	3	Heliostat	637459, 3937947	NA
2017_223_ISEGS	Unknown Small Bird	UNID	Carcass Survey	9/5/2017	9/5/2017	Feather spot	3-6 days	Feather spot size large consisting of 6 primaries, 4 secondaries, 1 retrix, and 2 coverts. Evidence of singe to all feathers.	Scorched or singed	Unk	3	Heliostat	637488, 3938079	NA
2017_224_ISEGS	Unknown Small Bird	UNID	Carcass Survey	9/5/2017	9/5/2017	Feather spot	3-6 days	Feather spot size large consisting of 4 retrices, 1 contour feather, 4 primaries, and 2 secondaries. Evidence of singe on secondaries and retrices.	Scorched or singed	Unk	3	Heliostat	637366, 3938073	NA
2017_225_ISEGS	Northern Rough-winged Swallow	NRWS	Carcass Survey	9/5/2017	9/5/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of singe to tip of retrices.	Scorched or singed	1	3	Heliostat	637464, 3937935	NA
2017_226_ISEGS	Yellow-headed Blackbird	YHBL	Carcass Survey	9/5/2017	9/5/2017	Dead, fresh (eyes moist)	8-24 hours	Whole carcass. Evidence of collision with tip of bill broken and evidence of blood from nostril.	Collision with solar panel/heliostat		3	Heliostat	637684, 3938004	NA
2017_227_ISEGS	Unknown Small Bird	UNID	Carcass Survey	9/6/2017	9/6/2017	Dead, Semi-fresh (eyes desiccated,	3-6 days	Whole Carcass.	Unknown		2	ACC Building	638650, 3935910	NA

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						rigor mortis)								
2017_228_ISEGS	Wilson's Warbler	WIWA	Carcass Survey	9/6/2017	9/6/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	2 days	Whole carcass. Evidence of curling to right wing and tail with left wing singed off, singe to crown, flanks and breast.	Scorched or singed	2	2	ACC Building	638666, 3935883	NA
2017_229_ISEGS	Unknown Warbler	UNWA	Carcass Survey	9/6/2017	9/6/2017	Feather spot	2 weeks	Feather spot size small, consisting of 5 primaries and 1 secondary. No evidence of collision or singe.	Unknown		2	Powerblock	638640, 3935875	NA
2017_230_ISEGS	Unknown Small Bird	UNID	Carcass Survey	9/6/2017	9/6/2017	Broken up	2 days	Broken up carcass consisting of 7 primaries held together by dried flesh, 2 secondaries, and 30 contour feathers. Evidence of singe on secondaries.	Scorched or singed	Unk	2	Powerblock	638635, 3935828	NA
2017_231_ISEGS	Unknown Grebe	UNGR	Carcass Survey	9/6/2017	9/6/2017	Broken up	2 weeks	Broken up carcass consisting of tip of left wing, 1 primary, 1 retrix, 2 clumps of contour feathers with skin. Evidence of singe on tips of primaries and retrix.	Scorched or singed	1	2	Heliostat	638590, 3936085	NA
2017_232_ISEGS	Tree Swallow	TRES	Carcass Survey	9/7/2017	9/7/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of curling to primaries and retrices, singe to back, rump, and cap.	Scorched or singed	2	1	ACC Building	640392, 3933522	NA
2017_233_ISEGS	Verdin	VERD	Carcass Survey	9/7/2017	9/7/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of curling to left wing and retrices, singe to rump, with feathers in right wing singed off.	Scorched or singed	2	1	ACC Building	640367, 3933534	NA
2017_234_ISEGS	Black-tailed Gnatcatcher	BTGN	Carcass Survey	9/7/2017	9/7/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of curling to left wing and retrices with flight feathers in right wing singed off, singe to crown, back, rump, and flanks.	Scorched or singed	2	1	ACC Building	640384, 3933546	NA
2017_235_ISEGS	Unknown Swallow	UNSW	Carcass Survey	9/7/2017	9/7/2017	Feather spot	3-6 days	Feather spot size large consisting of 6 primaries, 5 retrices, 4 flight feathers, 11 contour and covert feathers. Evidence of curling to all flight feathers with singe to coverts.	Scorched or singed	2	1	Powerblock	640365, 3933509	NA
2017_236_ISEGS	Unknown Small Bird	UNID	Carcass Survey	9/7/2017	9/7/2017	Feather spot	2 days	Feather spot size large consisting of 5 primaries, 2 secondaries, 4 retrices, and 30 contour feathers. No evidence of collision or singe.	Unknown		1	Powerblock	640408, 3933483	NA
2017_237_ISEGS	Bullock's Oriole	BUOR	Carcass Survey	9/7/2017	9/7/2017	Feather spot	3-6 days	Feather spot size large consisting of 8 retrices, 6 secondaries, 2 primaries, 70 body feathers and 15 pieces of broken flight feathers. Evidence of singe to retrices and secondaries.	Scorched or singed	Unk	1	Powerblock	640401, 3933482	NA
2017_238_ISEGS	Violet-green Swallow	VGSW	Carcass Survey	9/11/2017	9/11/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of singe on primaries, head, nape, and back.	Scorched or singed	1	3	ACC Building	637466, 3937952	NA
2017_239_ISEGS	Nashville Warbler	NAWA	Carcass Survey	9/11/2017	9/27/2017	Dead, Semi-fresh (eyes desiccated,	3-6 days	Whole carcass. Bird was unable to be retrieved during search due to placement below grate in Alley C. All applicable data	Scorched or singed	1	3	ACC Building	637469, 3937972	NA

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						rigor mortis)		fields will be filled when carcass is delivered to lab for processing. Bird retrieved from ACC on 9/27/2017 Evidence of singe on head						
2017_240_ISEGS	Yellow Warbler	YWAR	Carcass Survey	9/11/2017	9/11/2017	Dead, fresh (eyes moist)	8-24 hours	Whole carcass. Evidence of curling to primaries and secondaries and rectrices, singe to crown, back, rump, and left flank.	Scorched or singed	2	3	Powerblock	637434, 3937943	NA
2017_241_ISEGS	Yellow Warbler	YWAR	Incidental	9/9/2017	9/11/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	8-24 hours	Whole carcass, No evidence of collision or singe.	Unknown		3	ACC Building	637487, 3937978	NA
2017_242_ISEGS	Brewer's Sparrow	BRSP	Carcass Survey	9/11/2017	9/11/2017	Dead, fresh (eyes moist)	8-24 hours	Whole carcass. Evidence of curling to primaries with secondaries and rectrice feathers singed off, singe to head, throat, and breast.	Scorched or singed	2	3	Powerblock	637470, 3937889	NA
2017_243_ISEGS	Unknown Small Bird	UNID	Carcass Survey	9/11/2017	9/11/2017	Feather spot	2 weeks	Feather spot size small consisting of 20 contour feathers. Evidence of singe on 11 contour feathers.	Scorched or singed	Unk	3	Powerblock	637412, 3937913	NA
2017_244_ISEGS	Unknown Small Bird	UNID	Carcass Survey	9/11/2017	9/11/2017	Mummified	2 weeks	Whole carcass. Evidence of singeing to both wings, back, nape, and breast.	Scorched or singed	Unk	3	Powerblock	637466, 3937924	NA
2017_245_ISEGS	Nashville Warbler	NAWA	Carcass Survey	9/12/2017	9/12/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of curling to both wings and tail, singe to head, back, and nape.	Scorched or singed	2	2	ACC Building	638666, 3935908	NA
2017_246_ISEGS	Unknown Small Bird	UNID	Carcass Survey	9/12/2017	9/12/2017	Feather spot	3-6 days	Feather spot size small consisting of 30 body feathers, 1 covert. No evidence of collision or singe.	Unknown		2	Powerblock	638637, 3935830	NA
2017_247_ISEGS	Rock Dove	ROPI	Carcass Survey	9/12/2017	9/12/2017	Alive, injured	0-8 hours	Alive, injured bird. Evidence of curling to flight feathers in both wings and tail, singe to coverts in both wings, right eye and right side of face.	Scorched or singed	2	2	Powerblock	638632, 3935845	NA
2017_248_ISEGS	Yellow Warbler	YWAR	Carcass Survey	9/12/2017	9/12/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass. Evidence of curling to primaries and secondaries, singe to flanks and nape.	Scorched or singed	1	2	Powerblock	638623, 3935936	NA
2017_249_ISEGS	Lazuli Bunting	LAZB	Carcass Survey	9/13/2017	9/13/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	2 days	Whole carcass. Evidence of singe on tips of flight feathers and top of head.	Scorched or singed	1	1	Powerblock	640297, 3933541	NA
2017_250_ISEGS	Unknown Small Bird	UNID	Carcass Survey	9/13/2017	9/13/2017	Feather spot	3-6 days	Feather spot size large consisting of 3 primaries, 1 covert, and 45 body feathers. Evidence of singe on all 3 primaries.	Scorched or singed	Unk	1	Powerblock	640346, 3933505	NA
2017_251_ISEGS	Unknown Small Bird	UNID	Carcass Survey	9/13/2017	9/13/2017	Feather spot	3-6 days	Feather spot size large consisting of 5 primaries, 2 rectrices, 2 flight feathers. Evidence of singe on all flight feathers and rects.	Scorched or singed	1	1	Powerblock	640354, 3933486	NA
2017_252_ISEGS	Lazuli Bunting	LAZB	Incidental	9/13/2017	9/13/2017	Dead, fresh (eyes moist)	8-24 hours	Whole carcass. No evidence of collision or singe.	Unknown		2	Powerblock	638622, 3935864	NA
2017_253_ISEGS	Unknown Small Bird	UNID	Carcass Survey	9/14/2017	9/14/2017	Broken up	3-6 days	Broken up carcass consisting of part of left wing and 45 contour feathers. Evidence of	Scorched or singed	2	1	Heliostat	640303, 3933389	NA

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								curling to all flight feathers, singe to contour feathers.						
2017_254_ISEGS	Yellow Warbler	YWAR	Carcass Survey	9/18/2017	9/18/2017	Broken up	2 weeks	Broken up carcass consisting of 4 retrices and a skull. Evidence of singe to 2 retrices.	Scorched or singed	Unk	3	Heliostat	637372, 3937808	NA
2017_255_ISEGS	Green-Tailed Towhee	GTTO	Carcass Survey	9/18/2017	9/18/2017	Broken up	3-6 days	Broken up carcass consisting of partial right and left wings, pieces of tail, 1 retrix, 10 secondaries, and 150 contour feathers. Evidence of singe on several secondaries. Evidence of collision with heliostat imprint of crown feathers matching species. Ev	Collision with solar panel/heliostat		3	Heliostat	637220, 3937909	NA
2017_256_ISEGS	Rufous Hummingbird	RUHU	Carcass Survey	9/18/2017	9/18/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass. Evidence of curling to rects, singe to uppertail coverts.	Scorched or singed	1	3	Powerblock	637449, 3937931	NA
2017_257_ISEGS	Unknown Small Bird	UNID	Carcass Survey	9/18/2017	9/18/2017	Broken up	2 days	Broken up carcass consisting of cluster of 80 contour feathers attached by dried skin. No evidence of collision or singe.	Unknown		3	Powerblock	637450, 3937931	NA
2017_258_ISEGS	Unknown Grebe	UNGR	Carcass Survey	9/18/2017	9/18/2017	Broken up	3-6 days	Broken up carcass consisting of partial left wing, 2 pieces of right wing, 2 pieces of neck plumage connected by dried skin, 2 pieces of body plumage attached by dried skin, 300 contour feathers and 1 bone. No evidence of collision or singe.	Unknown		3	Heliostat	637271, 3938023	NA
2017_259_ISEGS	Verdin	VERD	Carcass Survey	9/18/2017	9/18/2017	Dead, fresh (eyes moist)	8-24 hours	Whole carcass. Evidence of curling to flight feathers in wing and tail, singe to rump and lower back.	Scorched or singed	Unk	3	Powerblock	637431, 3937957	NA
2017_260_ISEGS	Unknown Small Bird	UNID	Carcass Survey	9/18/2017	9/18/2017	Feather spot	3-6 days	Feather spot size small consisting of 2 retrices, 20 contour feathers and a 5 back feathers. Evidence of singe on several contour feathers.	Scorched or singed	3	3	Powerblock	637384, 3937958	NA
2017_261_ISEGS	Lark Sparrow	LASP	Carcass Survey	9/18/2017	9/18/2017	Broken up	3-6 days	Broken up carcass consisting of partial left wing, 7 primaries, 12 secondaries, 5 trailing secondaries, 9 retrices, and 25 contour feathers. Evidence of singe on tips of primaries, secondaries, and coverts.	Scorched or singed	1	3	Heliostat	637425, 3938057	NA
2017_262_ISEGS	Unknown Small Bird	UNID	Carcass Survey	9/18/2017	9/18/2017	Broken up	1 month +	Broken up carcass consisting of whole skull without much skin and no feathers. No evidence of collision or singe.	Unknown		3	Powerblock	637384, 3937958	NA
2017_263_ISEGS	Yellow Warbler	YWAR	Carcass Survey	9/18/2017	9/18/2017	Feather spot	0-8 hours	Feather spot size small consisting of 9 contour feathers and 1 retrix. Evidence of singe to retrix.	Scorched or singed	1	3	Powerblock	637413, 3937978	NA
2017_264_ISEGS	Blue-Gray Gnatcatcher	BGGN	Carcass Survey	9/18/2017	9/18/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of curling to rects, singe to right wing coverts, head, and rump.	Scorched or singed	1	3	Heliostat	637554, 3937764	NA
2017_265_ISEGS	Lazuli Bunting	LAZB	Incident	9/18/2017	9/18/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass. Evidence of curling to 1 retrix and coverts, singe to back and secondaries.	Scorched or singed	1	3	Heliostat	637477, 3937907	NA
2017_266_ISEGS	Yellow Warbler	YWAR	Carcass Survey	9/19/2017	9/19/2017	Dead, Semi-fresh (eyes desiccated,	2 weeks	Whole carcass. Curling to primaries, secondaries, and retrices with some feathers singed off, singe to head, breast,	Scorched or singed	2	2	ACC Building	638690, 3935883	NA

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						rigor mortis)		back, and wing coverts.						
2017_267_ISEGS	Townsend's Warbler	TOWA	Carcass Survey	9/19/2017	9/20/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	2 weeks	Whole carcass. Evidence of curling to retrices, singe to primaries, secondaries, head, breast, and right side of face.	Scorched or singed	1	2	ACC Building	638699, 3935895	NA
2017_268_ISEGS	Yellow Warbler	YWAR	Carcass Survey	9/19/2017	9/19/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	2 days	Whole carcass. Evidence of curling to all major flight feathers in both wings and tail, singe to back, head, and coverts.	Scorched or singed	2	2	ACC Building	638663, 3935908	NA
2017_269_ISEGS	Unidentified Flycatcher	UNFL	Carcass Survey	9/19/2017	9/19/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	2 days	Whole carcass. Evidence of curling to primary coverts, singe to head, back, rump, throat, and breast.	Scorched or singed	2	2	ACC Building	638696, 3935920	NA
2017_270_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	9/19/2017	9/19/2017	Feather spot	3-6 days	Feather spot size small consisting of 10 contour feathers. Evidence of singe on 1 contour feather.	Scorched or singed	3	2	ACC Building	638640, 3935923	NA
2017_271_ISEGS	Unknown Warbler	UNWA	Carcass Survey	9/19/2017	9/19/2017	Feather spot	3-6 days	Feather spot size large consisting of 5 primaries, 3 secondaries, 1 covert, 9 retrices, and 9 contour feathers. No evidence of collision or singe.	Unknown		2	Powerblock	638638, 3935869	NA
2017_272_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	9/19/2017	9/19/2017	Feather spot	3-6 days	Feather spot size small consisting of 3 primaries and 4 contour feathers. No evidence of collision or singe.	Unknown		2	Powerblock	638633, 3935841	NA
2017_273_ISEGS	Nashville Warbler	NAWA	Carcass Survey	9/19/2017	9/19/2017	Dead, fresh (eyes moist)	8-24 hours	Whole carcass. No evidence of collision or singe.	Unknown		2	Heliostat	638474, 3935724	NA
2017_274_ISEGS	Barn Swallow	BARS	Carcass Survey	9/19/2017	9/19/2017	Feather spot	8-24 hours	Feather spot size large consisting of 5 primaries, 7 retrices, 5 secondaries, 2 tertials, 30 body feathers. Evidence of singe on several contour feathers.	Scorched or singed	3	2	Heliostat	638598, 3935711	NA
2017_275_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	9/19/2017	9/19/2017	Feather spot	3-6 days	Feather spot size large consisting of 2 primaries, 2 secondaries, 1 flight feather, 1 covert, 10 contours. Evidence of curling to primaries and secondaries, singe to contours.	Scorched or singed	2	2	Powerblock	638636, 3935847	NA
2017_276_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	9/19/2017	9/19/2017	Broken up	2 days	Broken up carcass consisting of 50mm long section of partial torso with attached leg bone. Evidence of singe to several contour feathers.	Scorched or singed	Unk	2	Powerblock	638644, 3935859	NA
2017_277_ISEGS	Northern Rough-winged Swallow	NRWS	Carcass Survey	9/19/2017	9/19/2017	Broken up	3-6 days	Broken up carcass consisting of 5 primaries, 3 of which are connected by skin, 3 secondaries, 2 clumps of contour feathers connected by dried flesh, 45 loose contour feathers. Evidence of curling to primaries and secondaries, singe to contour feathers.	Scorched or singed	Unk	2	Powerblock	638645, 3935854	NA
2017_278_ISEGS	Unknown Swallow	UNSW	Carcass Survey	9/19/2017	9/19/2017	Broken up	3-6 days	Broken up carcass consisting of partial right wing and 5 contour feathers. Evidence of curling to wing flight feathers, singe to contours.	Scorched or singed	1	2	Powerblock	638642, 3935868	NA
2017_279_ISEGS	Yellow-	YRWA	Carcass	9/20/2017	9/20/2017	Feather spot	3-6 days	Feather spot size large consisting of 2	Scorched or singed	Unk	1	Heliostat	640192,	NA

USFWS #	Common Name	Species Code	How Found	Detection Date	Collection Date	Condition	Time Since Death/Injury	Description of Carcass/Injury	Cause of Death/Injury	Burn Grade	Unit	Nearest Project Feature	UTM Coordinates	SPUT Revisions
	rumped Warbler		Survey					primaries, 2 secondaries, 4 retrices, 32 contour feathers. Evidence of singe on 1 secondary.					3933611	
2017_280_ISEGS	Orange-crowned Warbler	OCWA	Carcass Survey	9/20/2017	9/20/2017	Dead, fresh (eyes moist)	8-24 hours	Whole carcass. Evidence of curling to both wings with flight feathers in tail singed off, singe to head, upper breast, nape, right side of face, axillaries, coverts.	Scorched or singed	2	1	ACC Building	640396, 3933547	NA
2017_281_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	9/20/2017	9/20/2017	Broken up	3-6 days	Broken up carcass consisting of partial right wing, 2 pieces of wing structure, 27 broken feathers, 80 contour feathers. Evidence of curling to all flight feathers and singe to many contour feathers.	Scorched or singed	Unk	1	Powerblock	640360, 3933486	NA
2017_282_ISEGS	Blue-Gray Gnatcatcher	BGGN	Carcass Survey	9/20/2017	9/20/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	2 days	Whole carcass. Evidence of collision with heliostat with matching feathers stuck upon mirror directly above bird. Evidence of curling to primaries, secondaries, and retrices.	Scorched or singed	1	1	Heliostat	640592, 3933583	NA
2017_283_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	9/20/2017	9/20/2017	Broken up	3-6 days	Broken up carcass consisting of 2 pieces of partial left wing, 1 primary, 1 secondary, and 200 contour feathers. No evidence of collision or singe.	Unknown		1	Heliostat	640540, 3933671	NA
2017_284_ISEGS	Rufous Hummingbird	RUHU	Carcass Survey	9/20/2017	9/20/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass. Evidence of singe to uppertail coverts.	Scorched or singed	3	1	Powerblock	640398, 3933444	NA
2017_285_ISEGS	Hermit Warbler	HEWA	Incidental	9/20/2017	9/20/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass. Evidence of singe. Primaries curled. Secondaries and rects singed off. Head, back, rump, throat, and right breast singed.	Scorched or singed	2	3	Powerblock	637487, 3937914	NA
2017_286_ISEGS	Brown-headed Cowbird	BHCO	Incidental	9/21/2017	9/21/2017	Mummified	2 weeks	Whole carcass. Evidence of singe. Primaries, secondaries, and retricies curled. Carcass singed on head, nape, back, and flanks.	Scorched or singed	2	2	Powerblock	638660, 3935845	NA
2017_287_ISEGS	Chipping Sparrow	CHSP	Incidental	9/24/2017	9/24/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass with no evidence of singe or collision.	Unknown		3	Heliostat	637574, 3938102	NA
2017_288_ISEGS	Yellow Warbler	YWAR	Carcass Survey	9/25/2017	9/25/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	2 days	Whole Carcass. Evidence of singe. Primaries and secondaries, and most rects singed off. Head, back, and rump singed.	Scorched or singed	2	3	ACC Building	637514, 3937946	NA
2017_289_ISEGS	Orange-crowned Warbler	OCWA	Carcass Survey	9/25/2017	9/25/2017	Dead, fresh (eyes moist)	0-8 hours	Whole Carcass. Evidence of singe on left side of face.	Scorched or singed	3	3	Powerblock	637380, 3937910	NA
2017_290_ISEGS	Bewick's Wren	BEWR	Carcass Survey	9/25/2017	9/25/2017	Broken up	2 days	Broken up carcass consisting of 13 primaries, 2 secondaries, a partial right wing (2 primaries w/11 coverts attached), 6 retricies and 80+ body feathers. Evidence of singe on contour feathers.	Scorched or singed	Unk	3	Heliostat	637288, 3938060	NA
2017_291_ISEGS	Unidentified Swallow	UNSW	Carcass Survey	9/25/2017	9/25/2017	Feather spot	2 weeks	Featherspot consisting of 2 primaries. Evidence of singe on both feathers.	Scorched or singed	Unk	3	Powerblock	637505, 3937897	NA

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2017_292_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	9/25/2017	9/25/2017	Broken up	3-6 days	Broken up carcass consisting of 10 body feathers attached to a dessicated piece of skin. No evidence of singe	Unknown		3	Heliostat	637307, 3938081	NA
2017_293_ISEGS	White-throated Swift	WTSW	Carcass Survey	9/25/2017	9/25/2017	Feather spot	3-6 days	Featherspot consisting of 9 primaries, 7 retricies, 2 unidentified flight feathers, 3 coverts, and 3 contour feathers. Evidence of singe. Primaries and retricies curled and contour feathers singed.	Scorched or singed	2	3	Powerblock	637419, 3937971	NA
2017_294_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	9/25/2017	9/25/2017	Broken up	1 month +	Broken up carcass consisting of 14 primaries, 5 unknown flight feathers, 10 coverts, 5 retricies, 60+ contour feathers, 13 misc bones, sternum, and skull. Evidence of singe on all flight feathers and many of the contour feathers.	Scorched or singed	Unk	3	Powerblock	637417, 3937972	NA
2017_295_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	9/25/2017	9/25/2017	Feather spot	3-6 days	Featherspot consisting of 2 primaries and 12 contour feathers.	Unknown		3	Heliostat	637440, 3938156	NA
2017_296_ISEGS	Yellow-rumped Warbler	YRWA	Carcass Survey	9/25/2017	9/25/2017	Feather spot	3-6 days	Featherspot consisting of 4 primaries, 9 secondaries, 4 retrix, and 100+ body feathers. Evidence of singe. Primaries, secondaries, and retricies curled. Body feathers singed.	Scorched or singed	3	3	Heliostat	637528, 3937752	NA
2017_297_ISEGS	Unidentified Warbler	UNWA	Carcass Survey	9/26/2017	9/26/2017	Broken up	2 days	Broken up carcass consisting of partial right wing (3 primaries, 4 coverts), 3 secondaries, and 2 retricies. No evidence of singe or collision.	Unknown		2	Heliostat	638597, 3936022	NA
2017_298_ISEGS	Mourning Dove	MODO	Carcass Survey	9/26/2017	9/26/2017	Broken up	3-6 days	Broken up carcass consisting of partial left wing, 11 primaries, 8 secondaries, 9 rects, and 300+ contour feathers. Evidence of collision. Imprint on heliostat matching size of bird.	Collision with solar panel/heliostat		2	Heliostat	638608, 3936053	NA
2017_299_ISEGS	Unidentified Warbler	UNWA	Carcass Survey	9/26/2017	9/26/2016	Feather spot	3-6 days	Featherspot consisting of 2 primaries, 6 contour feathers, +1 secondary. Evidence of singe on primaries with curled barbs.	Scorched or singed	Unk	2	Powerblock	638643, 3935860	NA
2017_300_ISEGS	Eared Grebe	EAGR	Carcass Survey	9/27/2017	9/27/2016	Alive, injured	0-8 hours	Live bird with no evidence of singe or collision	N/A		1	Heliostat	640236, 3933430	NA
2017_301_ISEGS	House Finch	HOFI	Carcass Survey	9/27/2017	9/27/2016	Broken up	2 weeks	Broken up carcass consisting of 2 pieces of left wing, 1 piece of right wing, several broken primaries and coverts with skin attached and 25+ body feathers. Evidence of singe on several body feathers with 2 curled flight feathers.	Scorched or singed	Unk	1	Powerblock	640295, 3933473	NA
2017_302_ISEGS	Yellow Warbler	YWAR	Carcass Survey	9/27/2017	9/27/2016	Broken up	8-24 hours	Broken up carcass consisting of a left wing. Evidence on singe seen on secondary.	Scorched or singed	Unk	1	Powerblock	640301, 3933474	NA
2017_303_ISEGS	Unidentified Sparrow	UNSP	Carcass Survey	9/27/2017	9/27/2016	Feather spot	2 days	Feather spot consisting of 4 primaries, 1 secondary, 1 rect, and 75+body feathers. No evidence of singe or collision.	Unknown		1	Heliostat	640211, 3933394	NA
2017_304_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	9/27/2017	9/27/2016	Feather spot	3-6 days	Feather spot consisting of 1 primary, 1 secondary, and 10 coverts. Evidence of singe on 7 coverts with primary feather	Scorched or singed	Unk	1	Heliostat	640298, 3933385	NA

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								curled.						
2017_305_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	9/27/2017	9/27/2016	Feather spot	3-6 days	Feather spot consisting of 10 body feathers and 4 undertail coverts. No evidence of singe or collision.	Unknown		1	Powerblock	640351, 3933504	NA
2017_306_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	9/27/2017	9/27/2016	Feather spot	3-6 days	Feather spot consisting of 1 secondary and 15 contour feathers. Evidence of singe on contour feathers.	Scorched or singed	3	1	Powerblock	640351, 3933503	NA
2017_307_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	9/27/2017	9/27/2016	Feather spot	3-6 days	Feather spot consisting of 150+ contour feathers. No evidence of singe or collision.	Unknown		1	Powerblock	640420, 3933480	NA
2017_308_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	9/27/2017	9/27/2016	Broken up	1 month +	Broken up carcass consisting of the left wing.	Scorched or singed	2	1	Powerblock	640417, 3933496	NA
2017_309_ISEGS	Unidentified Gnatcatcher	UNGN	Carcass Survey	9/27/2017	9/27/2016	Feather spot	3-6 days	Feather spot consisting of 7 secondaries, 2 rectx, and 15 contour. Evidence of singe; 3 curled secondaries with rectx and contours singed.	Scorched or singed	1	1	Heliostat	640324, 3933381	NA
2017_310_ISEGS	Yellow-rumped Warbler	YRWA	Incident	9/28/2017	9/28/2016	Dead, fresh (eyes moist)	0-8 hours	Whole carcass. Evidence of sing on breast. Curling of feathers in right wing and tail.	Scorched or singed	1	2	Powerblock	638620, 3935831	NA
2017_311_ISEGS	Townsend's Warbler	TOWA	Incident	9/30/2017	10/2/2017	Dead, fresh (eyes moist)	8-24 hours	Whole carcass. Evidence of curling to flight feathers, singe to throat, back, rump, and flanks.	Scorched or singed	2	3	Powerblock	637462, 3937929	NA
2017_312_ISEGS	Black-throated Gray Warbler	BTYW	Carcass Survey	10/2/2017	10/2/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	2 days	Whole carcass. evidence of singe. Curling to all major flight feathers in wings and tail. Singe to throat, breast, axillaries, and top of head.	Scorched or singed	2	3	ACC Building	637501, 3937960	NA
2017_313_ISEGS	Unknown Hummingbird	UNHU	Carcass Survey	10/2/2017	10/2/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of singe. Curling to wings and tail with all major flight feathers singed off. Singe to every part of body except the upper breast.	Scorched or singed	2	3	ACC Building	637514, 3937972	NA
2017_314_ISEGS	Yellow Warbler	YWAR	Carcass Survey	10/2/2017	10/2/2017	Feather spot	3-6 days	Feather spot consisting of 1 primary, 1 secondary, and 25 contour feathers. Evidence of singe on contour feathers.	Scorched or singed	1	3	NA	637293, 3937789	NA
2017_315_ISEGS	White-Crowned Sparrow	WCSP	Carcass Survey	10/2/2017	10/2/2017	Feather spot	3-6 days	Feather spot consisting of 6 primaries, 5 secondaries, 5 retricies, and 20 contour and covert feathers. No evidence of singe or collision.	Unknown		3	Heliostat	637294, 3937792	NA
2017_316_ISEGS	Yellow Warbler	YWAR	Carcass Survey	10/2/2017	10/2/2017	Dead, fresh (eyes moist)	8-24 hours	Whole carcass. Evidence of singe. Curing to all major flight feathers in wing and tail. Singe to top of head, breast, flanks, and coverts.	Scorched or singed	2	3	Powerblock	637478, 3937856	NA
2017_317_ISEGS	White-Crowned Sparrow	WCSP	Carcass Survey	10/2/2017	10/2/2017	Feather spot	2 weeks	Feather spot consisting of 2 secondaries, 20 covert and contour feathers. No evidence of singe or collision	Unknown		3	Heliostat	637423, 3937788	NA
2017_318_ISEGS	Unknown Small Bird	UNID	Carcass Survey	10/2/2017	10/2/2017	Broken up	1 month +	Broken up carcass consisting of the right wing. Evidence of singe. All flight feathers curled.	Scorched or singed	Unk	3	Heliostat	637431, 3937800	NA
2017_319_ISEGS	Unknown Sparrow	UNSP	Carcass Survey	10/2/2017	10/2/2017	Dead, Semi-fresh (eyes desiccated,	3-6 days	Whole carcass. Evidence of curling to 1 retrix and to several secondaries.	Scorched or singed	1	3	Powerblock	637452, 3937902	NA

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						rigor mortis)								
2017_320_ISEGS	House Wren	HOWR	Carcass Survey	10/2/2017	10/2/2017	Dead, fresh (eyes moist)	8-24 hours	Feather spot size large consisting of 11 primaries, 11 secondaries, 4 tertials, 7 retrices, and 200 contour feathers. Evidence of singe on several tips of primaries and secondaries and to some contour feathers.	Scorched or singed	1	3	Heliostat	637344, 3938094	NA
2017_321_ISEGS	Unknown Small Bird	UNID	Carcass Survey	10/2/2017	10/2/2017	Feather spot	3-6 days	Feather spot size small consisting of 5 retrices and 1 contour feather. No evidence of collision or singe.	Unknown		3	Heliostat	637482, 3938124	NA
2017_322_ISEGS	Lesser Goldfinch	LEGO	Carcass Survey	10/2/2017	10/2/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. No evidence of collision or singe.	Unknown		3	Powerblock	637467, 3937990	NA
2017_323_ISEGS	Chipping Sparrow	CHSP	Carcass Survey	10/2/2017	10/2/2017	Feather spot	3-6 days	Feather spot size large consisting of 35 flight feathers, 40 body feathers. No evidence of collision or singe.	Unknown		3	Heliostat	637483, 3938135	NA
2017_324_ISEGS	Unknown Small Bird	UNID	Carcass Survey	10/3/2017	10/3/2017	Broken up	3-6 days	Broken up carcass consisting of a partial right wing. Evidence of singe on tips of flight feathers.	Scorched or singed	1	2	Heliostat	638468, 3935733	NA
2017_325_ISEGS	Yellow-rumped Warbler	YRWA	Carcass Survey	10/3/2017	10/3/2017	Broken up	3-6 days	Broken up carcass consisting of 4 primaries attached together by dried flesh, 5 retrices, 18 miscellaneous flight feathers, and 15 contour feathers. Evidence of singe on several retrices.	Scorched or singed	2	2	Heliostat	638791, 3936007	NA
2017_326_ISEGS	Brown-headed Cowbird	BHCO	Incidental	10/3/2017	10/3/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of singe on primaries, secondaries, and rects.	Scorched or singed	1	2	Powerblock	638660, 3935845	NA
2017_327_ISEGS	Yellow-rumped Warbler	YRWA	Incidental	10/3/2017	10/3/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass. Evidence of curling to tail feathers, singe to left flank.	Scorched or singed	1	2	Powerblock	638550, 3935902	NA
2017_328_ISEGS	Yellow-rumped Warbler	YRWA	Carcass Survey	10/4/2017	10/4/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of curling to primaries and secondaries, retrice feathers singed off, singe to head and all underparts.	Scorched or singed	2	2	Powerblock	638662, 3935872	NA
2017_329_ISEGS	White-Crowned Sparrow	WCSP	Carcass Survey	10/4/2017	10/4/2017	Dead, fresh (eyes moist)	8-24 hours	Whole carcass. Evidence of curling to primaries, secondaries and retrices, singe to top of head, all upperparts, and left flank.	Scorched or singed	2	2	ACC Building	638675, 3935882	NA
2017_330_ISEGS	House Finch	HOFI	Carcass Survey	10/4/2017	10/4/2017	Dead, fresh (eyes moist)	8-24 hours	Whole carcass. Evidence of curling to tertials on left wing and retrices, singe to left and right side of face, nape, left upper breast, rump, and undertail coverts.	Scorched or singed	1	1	ACC Building	640411, 3933522	NA
2017_331_ISEGS	Yellow-rumped Warbler	YRWA	Carcass Survey	10/4/2017	10/4/2017	Dead, fresh (eyes moist)	8-24 hours	Whole carcass. Evidence of curling to primaries and secondaries, rect feathers singed off, singe to entire body except throat.	Scorched or singed	2	2	ACC Building	638659, 3935895	NA
2017_332_ISEGS	Black-throated	BTYW	Carcass	10/4/2017	10/4/2017	Dead, Semi-	2 days	Whole carcass. Evidence of singe to all	Scorched or singed	2	1	ACC Building	640418,	NA

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	Gray Warbler		Survey			fresh (eyes desiccated, rigor mortis)		parts of body except undertail coverts with all major flight feathers singed off.					3933535	
2017_333_ISEGS	Yellow-rumped Warbler	YRWA	Carcass Survey	10/4/2017	10/4/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	2 days	Whole carcass. Evidence of curling to all major flight feathers in wings and tail, singe to upper breast, head, coverts, rump, and axillaries.	Scorched or singed	2	1	ACC Building	640399, 3933534	NA
2017_334_ISEGS	Yellow-rumped Warbler	YRWA	Carcass Survey	10/4/2017	10/4/2017	Dead, fresh (eyes moist)	8-24 hours	Whole carcass. Evidence of curling to primaries, secondaries, and retrices, singe to top of head, sides of face, throat, entire breast, and uppertail coverts.	Scorched or singed	2	1	ACC Building	640389, 3933547	NA
2017_335_ISEGS	Unknown Small Bird	UNID	Carcass Survey	10/4/2017	10/4/2017	Broken up	3-6 days	Broken up carcass consisting of piece of right wing. Evidence of singe on tips of secondaries and some coverts.	Scorched or singed	1	2	Powerblock	638687, 3935891	NA
2017_336_ISEGS	Unknown Small Bird	UNID	Carcass Survey	10/4/2017	10/4/2017	Feather spot	3-6 days	Feather spot size small consisting of 12 contour feathers. Evidence of singe on tips of most feathers.	Scorched or singed	3	2	Powerblock	638683, 3935868	NA
2017_337_ISEGS	Unknown Small Bird	UNID	Carcass Survey	10/4/2017	10/4/2017	Feather spot	3-6 days	Feather spot size small consisting of 20 contour feathers. Evidence of singe on most feathers.	Scorched or singed	3	1	Powerblock	640357, 3933487	NA
2017_338_ISEGS	Unknown Swallow	UNSW	Carcass Survey	10/4/2017	10/4/2017	Feather spot	2 weeks	Feather spot size small consisting of 4 primaries, 6 rects, and 4 contour feathers. Evidence of singe on all feathers.	Scorched or singed	1	1	Powerblock	640376, 3933489	NA
2017_339_ISEGS	Yellow-rumped Warbler	YRWA	Carcass Survey	10/4/2017	10/4/2017	Dead, fresh (eyes moist)	8-24 hours	Whole carcass. Evidence of curling to all major flight feathers, singe to back and to right flank.	Scorched or singed	2	2	Powerblock	638635, 3935855	NA
2017_340_ISEGS	Unknown Swallow	UNSW	Carcass Survey	10/4/2017	10/4/2017	Feather spot	3-6 days	Feather spot size small consisting of 1 primary, 1 secondary, 1 covert, and 20 contour feathers. No evidence of collision or singe.	Unknown		1	Powerblock	640349, 3933505	NA
2017_341_ISEGS	Unknown Small Bird	UNID	Carcass Survey	10/4/2017	10/4/2017	Broken up	3-6 days	Broken up carcass consisting of partial right wing. No evidence of collision or singe.	Unknown		1	Powerblock	640274, 3933542	NA
2017_342_ISEGS	Yellow-rumped Warbler	YRWA	Carcass Survey	10/5/2017	10/5/2017	Feather spot	3-6 days	Feather spot size small consisting of 9 body feathers, 1 secondary, 2 primaries, and 3 rectrices. Evidence of curling to the primary and all rects.	Scorched or singed	Unk	1	Heliostat	640174, 3933456	NA
2017_343_ISEGS	Rose-breasted Grosbeak	RBGR	Carcass Survey	10/5/2017	10/5/2017	Feather spot	3-6 days	Feather spot size large consisting of 3 primaries, 2 secondaries, 1 tertial, 2 rectrices, and 50 contour feathers. Evidence of collision with imprint matching size of bird directly above feather spot. Evidence of curling to all flight feathers.	Scorched or singed	2	1	Heliostat	640313, 3933391	NA
2017_344_ISEGS	Northern Mockingbird	NOMO	Carcass Survey	10/5/2017	10/5/2017	Broken up	1 month +	Broken up carcass consisting of partial tail, partial right wing, 1 leg, body cavity, tip of left wing, 8 rects, and 1 primary. Evidence of singe on edge and tips of some rects and secondaries.	Scorched or singed	1	1	Heliostat	640519, 3933395	NA
2017_345_ISEGS	Chipping Sparrow	CHSP	Carcass Survey	10/5/2017	10/5/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass. Evidence of collision with imprint present matching size and shape of	Collision with solar panel/heliostat		1	Heliostat	640358, 3933674	NA

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								species.						
2017_346_ISEGS	Cooper's Hawk	COHA	Incidental	10/7/2017	10/7/2017	Dead, fresh (eyes moist)	0-8 hours	Injured bird which was captured on site and later died a rehab facility. No evidence of collision or singe.	Unknown		1	Project Feature	639521, 3934237	NA
2017_347_ISEGS	Yellow-rumped Warbler	YRWA	Carcass Survey	10/9/2017	10/9/2017	Dead, fresh (eyes moist)	8-24 hours	Whole carcass. Evidence of curling to primaries and end of rectrices.	Scorched or singed	2	2	ACC Building	638653, 3935913	NA
2017_348_ISEGS	Yellow-rumped Warbler	YRWA	Carcass Survey	10/9/2017	10/9/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	2 days	Whole carcass. Evidence of curling to all flight feathers in wing and tail, singe to head, nape, back, and flanks.	Scorched or singed	2	2	ACC Building	638637, 3935911	NA
2017_349_ISEGS	Violet-green Swallow	VGSW	Carcass Survey	10/9/2017	10/9/2017	Dead, fresh (eyes moist)	8-24 hours	Whole carcass. Evidence of curling to all major flight feathers in wing with feathers in rects singed off, singe to top of head, back, uppertail coverts, left flank and throat.	Scorched or singed	2	3	ACC Building	637499, 3937959	NA
2017_350_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	10/9/2017	10/9/2017	Broken up	1 month +	Broken up carcass consisting of 8 vertebrae with both dried skin and contour feathers attached. No evidence of collision or singe.	Unknown		2	Powerblock	638633, 3935918	NA
2017_351_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	10/9/2017	10/9/2017	Broken up	3-6 days	Broken up carcass consisting of 3 primaries and 1 covert attached by flesh. Evidence of curling to tips of primaries.	Scorched or singed	Unk	2	Powerblock	638688, 3935871	NA
2017_352_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	10/9/2017	10/9/2017	Feather spot	3-6 days	Feather spot size small consisting of 15 body feathers and 1 flight feather. Evidence of singe on flight feather and 1 body feather.	Scorched or singed	Unk	2	Powerblock	638644, 3935863	NA
2017_353_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	10/9/2017	10/9/2017	Feather spot	3-6 days	Feather spot size large consisting of 1 primary, 17 body feathers, and 1 covert. Evidence of singe on primary.	Scorched or singed	Unk	2	Powerblock	638660, 3935855	NA
2017_354_ISEGS	Ruby-crowned Kinglet	RCKI	Carcass Survey	10/9/2017	10/9/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of singe is visible on the throat and breast. Curling visible on 3 retrices.	Scorched or singed	1	2	Powerblock	638678, 3935837	NA
2017_355_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	10/9/2017	10/9/2017	Feather spot	3-6 days	Featherspot consisting of 40+ body feathers, 2 unidentified flight feathers. Evidence of singe is visible to several body feathers and both flight feathers. Curling to 1 flight feather.	Scorched or singed	Unk	3	Powerblock	637459, 3937941	NA
2017_356_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	10/9/2017	10/9/2017	Feather spot	3-6 days	Featherspot consisting of 10 body feathers, 1 primary, and 1 covert. Evidence of singe on 3 body feathers.	Scorched or singed	Unk	2	Powerblock	638694, 3935937	NA
2017_357_ISEGS	Yellow-rumped Warbler	YRWA	Carcass Survey	10/9/2017	10/9/2017	Dead, fresh (eyes moist)	8-24 hours	Whole carcass with evidence of singe. Curling to all major flight feathers in wing and tail. Singe on the right side of face, nape, right and left flank.	Scorched or singed	2	3	Powerblock	637534, 3937918	NA
2017_358_ISEGS	House Wren	HOWR	Carcass Survey	10/9/2017	10/9/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	2 days	Whole carcass, evidence of collision. Apparent injury to the back of the skull with no evidence of singe.	Collision with solar panel/heliostat		3	Powerblock	637463, 3937935	NA

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2017_359_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	10/10/2017	10/10/2017	Feather spot	3-6 days	Feather spot size large consisting of 5 primaries, 1 secondary, 1 retrix, and 8 body feathers. Evidence of singe on secondary and 1 primary.	Scorched or singed	Unk	3	Heliostat	637379, 3937753	NA
2017_360_ISEGS	Cooper's Hawk	COHA	Carcass Survey	10/11/2017	10/11/2017	Broken up	2 days	Broken up carcass consisting of torso with detached head, 150 loose body feathers, clump of feathers attached by dried skin. Evidence of collision with broken beak.	Collision with solar panel/heliostat		2	Heliostat	638869, 3935916	NA
2017_361_ISEGS	Violet-green Swallow	VGSW	Carcass Survey	10/12/2017	10/12/2017	Dead, fresh (eyes moist)	8-24 hours	Whole carcass. Evidence of curling to all flight feathers in wings with feathers in tail singed off, singe to all of dorsal side, axillaries and both flanks, and undertail coverts.	Scorched or singed	2	1	ACC Building	640414, 3933521	NA
2017_362_ISEGS	Violet-green Swallow	VGSW	Carcass Survey	10/12/2017	10/12/2017	Dead, fresh (eyes moist)	8-24 hours	Whole carcass. Evidence of curling to all flight feathers in wings with feathers in tail singed off, singe to top of head, back, rump, and undertail coverts.	Scorched or singed	2	1	ACC Building	640398, 3933522	NA
2017_363_ISEGS	House Finch	HOFI	Carcass Survey	10/12/2017	10/12/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of curling to all flight feathers in wings with tail singed off, singe to right side of face, back, breast, right side of rump.	Scorched or singed	2	1	ACC Building	640376, 3933522	NA
2017_364_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	10/12/2017	10/12/2017	Broken up	3-6 days	Broken up carcass consisting of 1 primary and 1 covert attached by dried flesh, 2 loose primaries. No evidence of collision or singe.	Unknown		1	Heliostat	640406, 3933722	NA
2017_365_ISEGS	Northern Mockingbird	NOMO	Carcass Survey	10/12/2017	10/12/2017	Broken up	2 weeks	Broken up carcass consisting of partial right wing. No evidence of collision or singe.	Unknown		1	Heliostat	640410, 3933298	NA
2017_366_ISEGS	Western Tanager	WETA	Carcass Survey	10/12/2017	10/12/2017	Feather spot	2 days	Feather spot size large consisting of 2 retrices, 3 primaries, 6 secondaries, 1 tertials, 1 trailing secondary, 1 undertail covert, and 40 body feathers. No evidence of collision or singe.	Unknown		1	Heliostat	640307, 3933358	NA
2017_367_ISEGS	Unknown Warbler	UNWA	Carcass Survey	10/12/2017	10/12/2017	Feather spot	3-6 days	Feather spot size large consisting of 2 primaries, 2 rects, 2 flight feathers, 7 contour feathers, and 3 undertail coverts. Evidence of curling to most of flight feathers.	Scorched or singed	1	1	Powerblock	640362, 3933495	NA
2017_368_ISEGS	Unknown Swallow	UNSW	Carcass Survey	10/12/2017	10/12/2017	Feather spot	1 month +	Feather spot size small consisting of 6 primaries and 2 secondaries. Evidence of singe to 1 primary.	Scorched or singed	Unk	1	Powerblock	640373, 3933493	NA
2017_369_ISEGS	Swainson's Thrush	SWTH	Carcass Survey	10/12/2017	10/12/2017	Broken up	3-6 days	Broken up carcass consisting of 4 primaries, 1 secondary, 1 flight feather, 1 undertail covert, 200 body feathers, and broken beak. No evidence of collision or singe.	Unknown		1	Heliostat	640466, 3933333	NA
2017_370_ISEGS	Unknown Blackbird	UNBB	Carcass Survey	10/12/2017	10/12/2017	Broken up	3-6 days	Broken up carcass consisting of partial left wing, 2 loose primaries. No evidence of collision or singe.	Unknown		1	Powerblock	640249, 3933542	NA
2017_371_ISEGS	Savannah Sparrow	SAVS	Carcass Survey	10/12/2017	10/12/2017	Feather spot	2 days	Feather spot size large consisting of 18 primaries, 15 secondaries 11 rectrices, and	Collision with solar panel/heliostat		1	Heliostat	640584, 3933616	NA

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								200 body feathers. Evidence of collision with heliostat imprint matching size and shape of species.						
2017_372_ISEGS	Unknown Sparrow	UNSP	Carcass Survey	10/12/2017	10/12/2017	Feather spot	2 days	Feather spot size large consisting of 1 primary and 50 body feathers. No evidence of collision or singe.	Unknown		1	Heliostat	640444, 3933655	NA
2017_373_ISEGS	Yellow-rumped Warbler	YRWA	Carcass Survey	10/16/2017	10/16/2017	Dead, fresh (eyes moist)	8-24 hours	Whole carcass; Evidence of singe in the throat, breast, belly, and crown. Curling to retricies and 10 flight feathers.	Scorched or singed	2	3	ACC Building	637473, 3937945	NA
2017_374_ISEGS	Chipping Sparrow	CHSP	Carcass Survey	10/16/2017	10/16/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass; evidence of singe on breast, head, and face. Tips of some primaries and rects singed. Broken Neck.	Scorched or singed	1	3	ACC Building	637514, 3937958	NA
2017_375_ISEGS	Red-breasted Nuthatch	RBNU	Carcass Survey	10/16/2017	10/16/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass, no evidence of singe of collision.	Unknown		3	ACC Building	637468, 3937967	NA
2017_376_ISEGS	Unknown Sparrow	UNSP	Carcass Survey	10/16/2017	10/16/2017	Feather spot	3-6 days	Feather spot size large consisting of 15 retrices, 1 retrix, 7 contour feathers, 2 secondaries, 2 flight feathers. Evidence of curling to 1 flight feather and 1 retrix.	Scorched or singed	Unk	3	Heliostat	637435, 3937722	NA
2017_377_ISEGS	Unidentified Woodpecker	UNWO	Carcass Survey	10/16/2017	10/16/2017	Broken up	3-6 days	Broken up carcass consisting of 2 primaries, 4 secondaries, and 3 body feathers. Secondaries connected by flesh. Evidence of singe. All flight feathers curled. Body feathers singed.	Scorched or singed	Unk	3	Powerblock	637408, 3937896	NA
2017_378_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	10/16/2017	10/16/2017	Feather spot	3-6 days	Feather spot size small consisting of 3 primaries, 1 unidentified flight feather and 2 contour feathers. Evidence of singe on tips of primaries and contours.	Scorched or singed	1	3	Heliostat	637370, 3937795	NA
2017_379_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	10/16/2017	10/16/2017	Feather spot	2 days	Feather spot size small consisting of 22 contour feathers. Evidence of singe on all contour feathers.	Scorched or singed	Unk	3	Powerblock	637462, 3937928	NA
2017_380_ISEGS	Yellow-rumped Warbler	YRWA	Carcass Survey	10/16/2017	10/16/2017	Broken up	2 days	Broken up carcass consisting of partial right wing. Evidence of curling to all flight feathers.	Scorched or singed	Unk	3	Powerblock	637445, 3937952	NA
2017_381_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	10/16/2017	10/16/2017	Broken up	3-6 days	Broken up carcass consisting of a partial right wing. No evidence of singe or collision.	Unknown		3	Powerblock	637446, 3937952	NA
2017_382_ISEGS	Yellow-rumped Warbler	YRWA	Carcass Survey	10/17/2017	10/17/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	2 days	Whole carcass; Evidence of singe. All flight feathers singed or curled. All upperparts singed.	Scorched or singed	2	2	ACC Building	638702, 3935895	NA
2017_383_ISEGS	Pine Siskin	PISI	Carcass Survey	10/17/2017	10/17/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	2 weeks	Whole carcass, evidence of singe on tips of primaries and rects.	Scorched or singed	1	2	Powerblock	638628, 3935924	NA
2017_384_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	10/17/2017	10/17/2017	Broken up	3-6 days	Broken up carcass consisting of the right wing with flesh and bone still attached. Evidence of singe. Primaries and	Scorched or singed	Unk	2	Powerblock	638648, 3935872	NA

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								secondaries curled and singed. Coverts have slight singe.						
2017_385_ISEGS	Unidentified Accipiter	UNAC	Carcass Survey	10/17/2017	10/17/2017	Feather spot	3-6 days	Feather spot size large consisting of 38 contour feathers. No evidence of singe or collision.	Unknown		2	Heliostat	638861, 3935941	NA
2017_386_ISEGS	Yellow-rumped Warbler	YRWA	Carcass Survey	10/17/2017	10/17/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass; evidence of singe on head and breast. Primaries and rectricsies with slight curling.	Scorched or singed	2	2	Powerblock	638630, 3935851	NA
2017_387_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	10/17/2017	10/17/2017	Feather spot	3-6 days	Feather spot size small consisting of 2 primaries, 1 secondary, 1 tertial	Scorched or singed	2	2	Powerblock	638632, 3935850	NA
2017_388_ISEGS	Yellow-rumped Warbler	YRWA	Carcass Survey	10/17/2017	10/17/2017	Dead, fresh (eyes moist)	8-24 hours	Whole carcass; evidence of curling on tips of rects.	Scorched or singed	1	2	Powerblock	638636, 3935847	NA
2017_389_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	10/17/2017	10/17/2017	Broken up	8-24 hours	Broken up carcass consisting of 5 pieces of wing with skin attached, 1 foot, 13 contour feathers, and 16 unidentified flight feathers. Evidence of singe. Curling and singe to 19 flight feathers, singe to 7 contour feathers.	Scorched or singed	Unk	2	Powerblock	638643, 3935798	NA
2017_390_ISEGS	Violet-green Swallow	VGSW	Carcass Survey	10/18/2017	10/18/2017	Feather spot	3-6 days	Feather spot size large consisting of 5 primaries, 4 secondaries, 2 retricies, and 3 contour feathers. Evidence of singe to all flight feathers	Scorched or singed	Unk	1	Heliostat	640172, 3933508	NA
2017_391_ISEGS	Vesper Sparrow	VESP	Carcass Survey	10/18/2017	10/18/2017	Broken up	0-8 hours	Broken up carcass consisting of 20 primaries, 14 secondaries, 12 rects, and partial torso with leg. 350+ contour feathers. No evidence of singe or collision.	Unknown		1	Heliostat	640345, 3933382	NA
2017_392_ISEGS	Yellow Warbler	YWAR	Carcass Survey	10/18/2017	10/18/2017	Feather spot	2 weeks	Feather spot size small consisting of 1 primary and 21 contour feathers. Evidence of singe on edges of primary feather.	Scorched or singed	1	1	Heliostat	640349, 3933379	NA
2017_393_ISEGS	Wilson's Warbler	WIWA	Carcass Survey	10/18/2017	10/18/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of singe to head, nape, rump, back, flanks, rects, and wings. Curling to left wing and rects. Upper mandible broken off.	Scorched or singed	2	1	ACC Building	640368, 3933534	NA
2017_394_ISEGS	Chipping Sparrow	CHSP	Carcass Survey	10/18/2017	10/18/2017	Dead, fresh (eyes moist)	8-24 hours	Whole carcass with evidence of singe to the head, neck, and left flank. Singe and curling to left wing and tail.	Scorched or singed	1	1	ACC Building	640368, 3933534	NA
2017_395_ISEGS	Unidentified Finch	UNFI	Carcass Survey	10/18/2017	10/18/2017	Feather spot	3-6 days	Feather spot size large consisting of 60+ contour feathers and 5 coverts. Evidence of singe on most contour feathers.	Scorched or singed	3	1	Heliostat	640383, 3933381	NA
2017_396_ISEGS	Black-Headed Grosbeak	BHGR	Carcass Survey	10/18/2017	10/18/2017	Feather spot	3-6 days	Feather spot size large consisting of 2 primaries, 1 secondary, 2 rects and 2 contours. Evidence of singe; all flight feathers curled.	Scorched or singed	2	1	Heliostat	640295, 3933346	NA
2017_397_ISEGS	Wilson's Warbler	WIWA	Carcass Survey	10/18/2017	10/18/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of singe. Singe on tips of rects and some primaries/secondaries.	Scorched or singed	3	1	ACC Building	640397, 3933541	NA
2017_398_ISEGS	Unidentified	UNID	Carcass	10/18/2017	10/18/2017	Feather spot	3-6 days	Feather spot size large consisting of 11	Scorched or singed	1	1	Heliostat	640322,	NA

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	Small Bird		Survey					primaries, 11 secondaries, 2 tertials, and 1 unidentified flight feather. Evidence of singe on most flight feathers. 2 secondaries and 1 primary curled.					3933350	
2017_399_ISEGS	Orange-crowned Warbler	OCWA	Carcass Survey	10/18/2017	10/18/2017	Feather spot	3-6 days	Feather spot size large consisting of 8 primaries, 7 secondaries, 7 retricies, and 75+contour feathers. Evidence of singe; 1 primary curled. Some primaries, secondaries, and rects singed on edges. Some contours singed.	Scorched or singed	1	1	Heliostat	640329, 3933343	NA
2017_400_ISEGS	Northern Mockingbird	NOMO	Carcass Survey	10/18/2017	10/18/2017	Broken up	1 month +	Broken up carcass consisting of 11 primaries, 5 of which are attached together by skin, 13 secondaries +3 with bone attached, 2 retricies, and 2 contours. Evidence of singe on 23 flight feathers and 2 contour feathers.	Scorched or singed	Unk	1	Heliostat	640326, 3933334	NA
2017_401_ISEGS	Unidentified Woodpecker	UNWO	Carcass Survey	10/18/2017	10/18/2017	Broken up	3-6 days	Broken up carcass consisting of mandibles, 26 unidentified flight feathers and 200+ contour feathers. Evidence of singe; All flight feathers webbing singed off, most contours have singe.	Scorched or singed	Unk	1	Powerblock	640374, 3933509	NA
2017_402_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	10/18/2017	10/18/2017	Broken up	3-6 days	Broken up carcass consisting of the right wing, a partial left wing, and 40 contour feathers. Evidence of singe. All right wing feathers curled or singed off. Most contours singed.	Scorched or singed	2	1	Heliostat	640374, 3933345	NA
2017_403_ISEGS	Black-Throated Sparrow	BTSP	Carcass Survey	10/18/2017	10/18/2017	Broken up	3-6 days	Broken up carcass consisting of 3 primaries, 7 secondaries (2 coverts attached), 8 rects, 9 contours, 20+contours with skin attached, and 2 unknown flight feathers. Evidence of singe; 2 curled rects, 1 singed primary, singed clump of 20 contours, and curl	Scorched or singed	Unk	1	Powerblock	640379, 3933511	NA
2017_404_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	10/18/2017	10/18/2017	Broken up	3-6 days	Broken up carcass consisting of the posterior half of the carcass (lower torso & legs). Evidence of singe. All attached feathers singed	Scorched or singed	Unk	1	Heliostat	640335, 3933303	NA
2017_405_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	10/18/2017	10/18/2017	Feather spot	3-6 days	Feather spot size small consisting of 100+ contour feathers. No evidence of collision or singe.	Unknown		1	Powerblock	640402, 3933503	NA
2017_406_ISEGS	Unidentified Woodpecker	UNWO	Carcass Survey	10/18/2017	10/18/2017	Feather spot	3-6 days	Feather Spot size large consisting of 8 retricies, 20 primaries, 10 secondaries, 4 unknown flight feathers, and 300+ contour feathers. Evidence of singe. All flight feathers singed, 5 primaries curled, many contour feathers singed.	Scorched or singed	Unk	1	Powerblock	640383, 3933578	NA
2017_407_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	10/18/2017	10/18/2017	Feather spot	3-6 days	Feather spot size small consisting of 20 contour feathers. Evidence of singe on 13 of the 20 contour feathers.	Scorched or singed	Unk	1	Powerblock	640322, 3933592	NA

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2017_408_ISEGS	Fox Sparrow	FOSP	Carcass Survey	10/18/2017	10/18/2017	Feather spot	3-6 days	Feather spot size small consisting of 14 contour feathers. No evidence of singe or collision.	Unknown		1	Powerblock	640311, 3933418	NA
2017_409_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	10/18/2017	10/18/2017	Feather spot	2 days	Feather spot size small consisting of 13 contour feathers. No evidence of singe or collision.	Unknown		1	Heliostat	640540, 3933544	NA
2017_410_ISEGS	Yellow-rumped Warbler	YRWA	Carcass Survey	10/18/2017	10/18/2017	Feather spot	3-6 days	Feather spot size small consisting of 4 primaries, 1 retrix, 1 secondary, and 7 contours. Evidence of singe. Rect curled; all flight feathers singed, and secondary curled.	Scorched or singed	Unk	1	Powerblock	640348, 3933420	NA
2017_411_ISEGS	Savannah Sparrow	SAVS	Carcass Survey	10/18/2017	10/18/2017	Feather spot	3-6 days	Feather spot size large consisting of 17 primaries, 11 secondaries, 11 rects, and 100+ contour/covert feathers. No evidence of singe or collision.	Unknown		1	Heliostat	640611, 3933573	NA
2017_412_ISEGS	Unidentified Swallow	UNSW	Carcass Survey	10/18/2017	10/18/2017	Feather spot	2 days	Feather spot size large consisting of 70 contour feathers, 1 primary, and 1 retrix. Evidence of singe; Singe is present on all contour feathers.	Scorched or singed	Unk	1	Heliostat	640275, 3933651	NA
2017_413_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	10/18/2017	10/18/2017	Feather spot	3-6 days	Feather spot size small consisting of 1 primary and 30 contour feathers. Evidence of singe on contour feathers. Primary is curled.	Scorched or singed	2	1	Powerblock	640390, 3933469	NA
2017_414_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	10/18/2017	10/18/2017	Feather spot	2 weeks	Feather spot size small consisting of 9 retricies. Evidence of singe on retricies.	Scorched or singed	Unk	1	Powerblock	640304, 3933480	NA
2017_415_ISEGS	Unidentified Sparrow	UNSP	Carcass Survey	10/18/2017	10/18/2017	Feather spot	2 days	Feather spot size large consisting of 1 primary, 5 secondaries, 4 retricies, and 45+ contour feathers. No evidence of singe or collision.	Unknown		1	Heliostat	640503, 3933648	NA
2017_416_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	10/18/2017	10/18/2017	Feather spot	3-6 days	Feather spot size large consisting of 4 rects, 1 tertial, and 40+ contours and coverts. Evidence of singe on tips of rects and tertials.	Scorched or singed	1	1	Heliostat	640380, 3933704	NA
2017_417_ISEGS	Unidentified Duck	UNDU	Carcass Survey	10/18/2017	10/18/2017	Broken up	3-6 days	Broken up carcass consisting of 4 pieces of right wing (flight feathers with skin and bone attached), 7 secondaries, 5 contours, 2 unknown flight feathers, and 3 unknown bones. No evidence of singe or collision.	Unknown		1	Powerblock	640314, 3933553	NA
2017_418_ISEGS	House Finch	HOFI	Incidental	10/18/2017	10/18/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass. Evidence of singe on cheek, throat, breast, flanks, and rump. Wings and tail singed and curled.	Scorched or singed	2	3	Powerblock	637492, 3937927	NA
2017_419_ISEGS	Yellow-rumped Warbler	YRWA	Carcass Survey	10/18/2017	10/18/2017	Feather spot	3-6 days	Feather spot size large consisting of 6 primaries, 5 secondaries, 1 tertial, 2 rects, 1 unidentified flight feather, and 4 contours. Evidence of singe; 2 primaries curled. All other flight feathers are singed on the edges.	Scorched or singed	1	1	Heliostat	640329, 3933343	NA
2017_420_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	10/18/2017	10/18/2017	Feather spot	3-6 days	Feather spot size small consisting of 2 primaries, 5 retricies, and 4 secondaries.	Scorched or singed	Unk	1	Heliostat	640295, 3933346	NA

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								Evidence of singe on 2 of the retricies.						
2017_421_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	10/18/2017	10/18/2017	Broken up	3-6 days	Broken up carcass consisting of a partial left wing. Evidence of singe; Flight feathers singed off. Coverts singed.	Scorched or singed	2	1	Heliostat	640295, 3933346	NA
2017_422_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	10/23/2017	10/23/2017	Broken up	3-6 days	Broken up carcass consisting of partial right wing, 1 retrix, and 10 body feathers. Evidence of singe to body feathers.	Scorched or singed	Unk	3	Heliostat	637426, 3938068	NA
2017_423_ISEGS	Western Meadowlark	WEME	Carcass Survey	10/23/2017	10/23/2017	Broken up	3-6 days	Broken up carcass consisting of partial piece of wing made up of lesser coverts attached by dried skin, 3 primaries, 2 secondaries, and 150 body feathers. No evidence of collision or singe.	Unknown		3	Heliostat	637389, 3937775	NA
2017_424_ISEGS	Mourning Dove	MODO	Carcass Survey	10/23/2017	10/23/2017	Feather spot	3-6 days	Feather spot size large consisting of 2 rectrices, 2 secondaries, 4 coverts, and 75 body feathers. No evidence of collision or singe.	Unknown		3	Heliostat	637228, 3937863	NA
2017_425_ISEGS	Pine Siskin	PISI	Carcass Survey	10/23/2017	10/23/2017	Feather spot	3-6 days	Feather spot size large consisting of 2 primaries, 3 coverts, 9 body feathers. Evidence of singe to coverts.	Scorched or singed	Unk	3	Heliostat	637228, 3937863	NA
2017_426_ISEGS	Yellow-rumped Warbler	YRWA	Incidental	10/23/2017	10/23/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of curling to all major flight feathers in wings and tail, singe to top of head, upper breast, right lower flanks and nape.	Scorched or singed	2	3	Powerblock	637458, 3937905	NA
2017_427_ISEGS	Unidentified Sapsucker	UNSS	Carcass Survey	10/25/2017	10/25/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of curling to primaries, secondaries, and rectrices, singe to top of head, nape, upper breast, and axillaries.	Scorched or singed	2	3	ACC Building	637460, 3937946	NA
2017_428_ISEGS	Yellow-rumped Warbler	YRWA	Carcass Survey	10/25/2017	10/25/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of curling to all major flight feathers in wings with feathers in tail singed off, singe to top of head and both flanks.	Scorched or singed	2	3	ACC Building	637487, 3937985	NA
2017_429_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	10/25/2017	10/25/2017	Broken up	3-6 days	Broken up carcass consisting of piece of wing comprised of 3 flight feathers and 3 coverts attached by dried skin. Evidence of curling to all flight feathers.	Scorched or singed	1	3	Powerblock	637515, 3937910	NA
2017_430_ISEGS	Lesser Goldfinch	LEGO	Carcass Survey	10/30/2017	10/30/2017	Feather spot	2 days	Feather spot size small consisting of 11 primaries, 5 secondaries, 3 rectrices, and 50 body feathers. Evidence of curling to primary, singe to body feathers.	Scorched or singed	Unk	1	Heliostat	640122, 3933497	NA
2017_431_ISEGS	Violet-green Swallow	VGSW	Carcass Survey	10/30/2017	10/30/2017	Feather spot	3-6 days	Feather spot size small consisting of 3 coverts and 50 contour feathers with some in clumps not attached by dried skin. Evidence of curling to 2 coverts, singe to many contour feathers.	Scorched or singed	1	1	Heliostat	640172, 3933485	NA
2017_432_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	10/30/2017	10/30/2017	Feather spot	3-6 days	Feather spot size small consisting of 2 primaries, 2 partial pieces of flight feathers. Evidence of curling to primaries and 1 flight feather.	Scorched or singed	1	1	Heliostat	640150, 3933452	NA
2017_433_ISEGS	Unidentified	UNID	Carcass	10/30/2017	10/30/2017	Feather spot	2 days	Feather spot size small consisting of 2	Scorched or singed	1	1	Heliostat	640173,	NA

USFWS #	Common Name	Species Code	How Found	Detection Date	Collection Date	Condition	Time Since Death/Injury	Description of Carcass/Injury	Cause of Death/Injury	Burn Grade	Unit	Nearest Project Feature	UTM Coordinates	SPUT Revisions
	Small Bird		Survey					secondaries, 2 coverts, and 30 contour feathers. Evidence of singe to 1 secondary.					3933452	
2017_434_ISEGS	Bewick's Wren	BEWR	Carcass Survey	10/30/2017	10/30/2017	Broken up	3-6 days	Broken up carcass consisting 25 crown feathers connected by dried skin, 4 retrices, 75 body feathers, 6 primaries, and 3 secondaries. No evidence of collision or singe.	Unknown		1	Heliostat	640198, 3933428	NA
2017_435_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	10/30/2017	10/30/2017	Feather spot	3-6 days	Feather spot size small consisting of 1 retrix, 4 flight feathers, 1 covert, 15 body feathers. Evidence of curling to flight feathers, singe to retrix and body feathers.	Scorched or singed	Unk	1	Heliostat	640286, 3933383	NA
2017_436_ISEGS	Yellow-rumped Warbler	YRWA	Carcass Survey	10/30/2017	10/30/2017	Feather spot	3-6 days	Feather spot size small consisting of 3 retrices, 6 primaries, 3 secondaries, and 25 body feathers. Evidence of curling to 1 primary, singe to rects and remaining primaries.	Scorched or singed	Unk	1	Heliostat	640391, 3933387	NA
2017_437_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	10/30/2017	10/30/2017	Broken up	2 weeks	Broken up carcass consisting of 30 body feathers connected by large piece of skin. No evidence of collision or singe.	Unknown		1	Heliostat	640515, 3933385	NA
2017_438_ISEGS	Yellow-rumped Warbler	YRWA	Carcass Survey	10/30/2017	10/30/2017	Feather spot	3-6 days	Feather spot size large consisting of 11 retrices, 11 primaries, 4 secondaries, and 25 body feathers. Evidence of singe to tips of primaries.	Scorched or singed	Unk	1	Heliostat	640413, 3933344	NA
2017_439_ISEGS	Unknown Kinglet	UNKI	Carcass Survey	10/30/2017	10/30/2017	Broken up	3-6 days	Broken up carcass consisting of partial left wing, partial piece of flight feather. Evidence of curling to several primaries.	Scorched or singed	1	1	Heliostat	640246, 3933323	NA
2017_440_ISEGS	American Pipit	AMPI	Carcass Survey	10/30/2017	10/30/2017	Feather spot	8-24 hours	Feather spot size large consisting of 150 body feathers, 2 rectrices, 5 primaries, 2 secondaries, and 7 flight feathers. Evidence of curling to flight feathers, singe to body feathers.	Scorched or singed	Unk	1	Heliostat	640399, 3933295	NA
2017_441_ISEGS	Violet-green Swallow	VGSW	Carcass Survey	10/31/2017	10/31/2017	Feather spot	3-6 days	Feather spot size large consisting of 2 rectrices, 2 primaries, 2 secondaries, and 25 body feathers. Evidence of singe to primaries and secondaries.	Scorched or singed	Unk	1	Heliostat	640264, 3933683	NA
2017_442_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	10/31/2017	10/31/2017	Broken up	3-6 days	Broken up carcass with carcass with missing head. Evidence of singe to majority to body feathers with flight feathers singed off.	Scorched or singed	2	1	Heliostat	640492, 3933562	NA
2017_443_ISEGS	Yellow-rumped Warbler	YRWA	Carcass Survey	10/30/2017	10/30/2017	Feather spot	3-6 days	Feather spot size large consisting of 5 rectrices, 1 primary, 2 secondaries, 4 unknown flight feathers. Evidence of singe on tips of flight feathers.	Scorched or singed	Unk	1	Heliostat	640413, 3933344	NA
2017_444_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	10/30/2017	10/30/2017	Broken up	3-6 days	Broken up carcass consisting of 2 flight feather and 3 coverts connected by dried connective tissue. Evidence of curling to flight feathers and coverts.	Scorched or singed	1	1	Heliostat	640246, 3933323	NA
2017_445_ISEGS	Unidentified Warbler	UNWA	Incidental	10/31/2017	10/31/2017	Mummified	1 month +	Whole carcass. Evidence of singe to most of body with all flight feathers singed off.	Scorched or singed	2	3	NA	637487, 3937914	NA

USFWS #	Common Name	Species Code	How Found	Detection Date	Collection Date	Condition	Time Since Death/Injury	Description of Carcass/Injury	Cause of Death/Injury	Burn Grade	Unit	Nearest Project Feature	UTM Coordinates	SPUT Revisions
2017_446_ISEGS	Vaux's swift	VASW	Incidental	10/31/2017	10/31/2017	Mummified	1 month +	Whole carcass. Evidence of curling to primaries, all flight feathers singed, singe to all of dorsal side.	Scorched or singed	2	3	Powerblock	637487, 3937914	NA
2017_447_ISEGS	Northern Rough-winged Swallow	NRWS	Incidental	10/31/2017	10/31/2017	Mummified	1 month +	Whole carcass. Evidence of singe to all flight feathers and top of head.	Scorched or singed	2	3	Powerblock	637478, 3937914	NA
2017_448_ISEGS	Yellow-rumped Warbler	YRWA	Incidental	10/31/2017	10/31/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of curling to primaries, secondaries, and retrices, singe to head, nape, and back.	Scorched or singed	2	3	Powerblock	637487, 3937914	NA
2017_449_ISEGS	Yellow-rumped Warbler	YRWA	Carcass Survey	11/1/2017	11/1/2017	Dead, fresh (eyes moist)	8-24 hours	Whole carcass. Evidence of curling to all flight feathers. Singe on head, nape, throat, and chest.	Scorched or singed	2	1	ACC Building	640405, 3933534	NA
2017_450_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	11/1/2017	11/1/2017	Broken up	3-6 days	Broken up carcass consisting of the left wing. Evidence of singe. Curling of primary coverts.	Scorched or singed	Unk	1	Powerblock	640368, 3933492	NA
2017_451_ISEGS	Unidentified Warbler	UNWA	Carcass Survey	11/1/2017	11/1/2017	Feather spot	3-6 days	Feather spot size small consisting of 6 retricies. All retricies are curled.	Scorched or singed	Unk	1	Powerblock	640302, 3933556	NA
2017_452_ISEGS	American Kestrel	AMKE	Carcass Survey	11/1/2017	11/1/2017	Feather spot	2 weeks	Feather spot size large consisting of 4 primaries, 2 secondaries, and 30+body feathers. Evidence of singe to the tips of flight feathers and body feathers.	Scorched or singed	Unk	1	Powerblock	640290, 3933537	NA
2017_453_ISEGS	House Sparrow	HOSP	Carcass Survey	11/6/2017	11/6/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	2 days	Whole carcass. Evidence of curling to flight feathers in both wings and tail, singe to top of head, uppertail coverts, and flanks.	Scorched or singed	2	2	ACC Building	638703, 3935896	NA
2017_454_ISEGS	Lesser Goldfinch	LEGO	Carcass Survey	11/6/2017	11/6/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	2 days	Whole carcass. Evidence of singe to median coverts in right wing.	Scorched or singed	3	2	ACC Building	638703, 3935895	NA
2017_455_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	11/6/2017	11/6/2017	Broken up	3-6 days	Broken up carcass consisting of partial right wing consisting of secondaries and coverts. Evidence of curling to secondaries and coverts.	Scorched or singed	Unk	2	Powerblock	638587, 3935924	NA
2017_456_ISEGS	Ruby-crowned Kinglet	RCKI	Carcass Survey	11/6/2017	11/6/2017	Dead, Semi-fresh (eyes desiccated, rigor mortis)	3-6 days	Whole carcass. Evidence of singe to head, nape, chest, and breast, with all flight feathers singed off.	Scorched or singed	2	2	ACC Building	638644, 3935908	NA
2017_457_ISEGS	House Sparrow	HOSP	Carcass Survey	11/6/2017	11/6/2017	Alive, injured	3-6 days	Alive and injured bird. Evidence of singe to right side of face, flanks, and axillaries.	Scorched or singed	3	2	Powerblock	638639, 3935869	NA
2017_458_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	11/6/2017	11/6/2017	Broken up	3-6 days	Broken up carcass consisting of coverts attached by dried skin, 1 primary, several body feathers. Evidence of singe to primary and tips of coverts.	Scorched or singed	Unk	2	Powerblock	638648, 3935874	NA
2017_459_ISEGS	Unknown Woodpecker	UNWO	Carcass Survey	11/7/2017	11/7/2017	Feather spot	2 days	Feather spot size large consisting of 7 retrices, 4 primaries, 13 unknown flight feathers and 100 body feathers. Evidence of curling or singe to all flight feathers, singe to body feathers.	Scorched or singed	Unk	2	Heliostat	638814, 3936020	NA

USFWS #	Common Name	Species Code	How Found	Detection Date	Collection Date	Condition	Time Since Death/Injury	Description of Carcass/Injury	Cause of Death/Injury	Burn Grade	Unit	Nearest Project Feature	UTM Coordinates	SPUT Revisions
2017_460_ISEGS	Yellow-rumped Warbler	YRWA	Carcass Survey	11/7/2017	11/7/2017	Broken up	3-6 days	Broken up carcass consisting of 3 pieces of partial wing held together by dried flesh, 5 rects, 1 primary, 5 flight feathers, and 2 coverts. Evidence of curling to 2 rects and several flight feathers.	Scorched or singed	1	2	Heliostat	638628, 3936037	NA
2017_461_ISEGS	Blue-Gray Gnatcatcher	BGGN	Carcass Survey	11/7/2017	11/7/2017	Feather spot	2 weeks	Feather spot size small consisting of 11 rectrices broken off half way up rachis. No evidence of collision or singe.	Unknown		2	Heliostat	638631, 3936026	NA
2017_462_ISEGS	Mourning Dove	MODO	Carcass Survey	11/7/2017	11/7/2017	Feather spot	3-6 days	Feather spot size large consisting of 15 body feathers, 1 primary, 2 secondaries, 1 rectrix. No evidence of collision or singe.	Unknown		2	Heliostat	638613, 3936043	NA
2017_463_ISEGS	Ruby-crowned Kinglet	RCKI	Carcass Survey	11/14/2017	11/14/2017	Mummified	2 weeks	Whole carcass, Primaries and secondaries on the left wing is curled. Rectrices singed off. Evidence of singe on breast, flanks, rump, and crown.	Scorched or singed	2	3	ACC Building	638647, 3935895	NA
2017_464_ISEGS	Unknown Duck	UNDU	Carcass Survey	11/20/2017	11/20/2017	Feather spot	3-6 days	Feather spot size large consisting of 6 primaries, 2 secondaries, 6 trailing secondaries, and 100+ body feathers.	Unknown		1	Heliostat	640182, 3933590	NA
2017_465_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	11/20/2017	11/20/2017	Feather spot	3-6 days	Feather spot size small consisting of 11 flight feathers and 10 contour feathers. No evidence of singe or collision.	Unknown		1	Heliostat	640169, 3933577	NA
2017_466_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	11/20/2017	11/20/2017	Feather spot	2 weeks	Feathers spot size small consisting of 3 flight feathers and 30+body feathers. Evidence of singe. Flight feathers slightly curled. Most body feathers singed.	Scorched or singed	Unk	1	Heliostat	640297, 3933387	NA
2017_467_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	11/20/2017	11/20/2017	Feather spot	2 weeks	Feather Spot size small consisting of 11 contour feathers. Evidence of singe seen on 1/3 of all body fathers.	Scorched or singed	Unk	1	Heliostat	640405, 3933389	NA
2017_468_ISEGS	European Starling	EUST	Carcass Survey	11/20/2017	11/20/2017	Feather spot	3-6 days	Feather spot size small consisting of 20+ body feathers. Evidence of singe present on the tips of several body feathers.	Scorched or singed	Unk	1	Heliostat	640381, 3933375	NA
2017_469_ISEGS	American Pipit	AMPI	Carcass Survey	11/20/2017	11/20/2017	Feather spot	3-6 days	Feather spot size large consisting of 20 flight feathers and 40+ body feathers.	Scorched or singed	1	1	Heliostat	640295, 3933345	NA
2017_470_ISEGS	Hermit Thrush	HETH	Carcass Survey	11/20/2017	11/20/2017	Feather spot	3-6 days	Feathers spot size small consisting of 1 primary, 4 secondaries, and 20+ body feathers. No evidence of collision on singe observed.	Unknown		1	Heliostat	640450, 3933330	NA
2017_471_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	11/20/2017	11/20/2017	Broken up	1 month +	Broken up carcass consisting of a partial right wing and 10+ body feathers. Evidence of singe on tips of primary flight feathers.	Scorched or singed	Unk	1	Heliostat	640487, 3933293	NA
2017_472_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	11/20/2017	11/20/2017	Broken up	8-24 hours	Broken up carcass consisting of a Partial left wing 5+body feathers.	Unknown		1	Heliostat	640554, 3933402	NA
2017_473_ISEGS	European Starling	EUST	Carcass Survey	11/20/2017	11/20/2017	Feather spot	3-6 days	Feathers spot size small consisting of 1 primary, 1 secondary, and 50+ body feathers. Evidence of singe; secondary curled, primary singed,multiple other body feathers singed.	Scorched or singed	Unk	1	Heliostat	640512, 3933580	NA
2017_474_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	11/20/2017	11/20/2017	Feather spot	2 days	Feather Spot size small consisting of 7 flight feathers and 60 body feathers. No evidence	Unknown		1	Heliostat	640257, 3933694	NA

USFWS #	Common Name	Species Code	How Found	Detection Date	Collection Date	Condition	Time Since Death/Injury	Description of Carcass/Injury	Cause of Death/Injury	Burn Grade	Unit	Nearest Project Feature	UTM Coordinates	SPUT Revisions
								of singe or collision.						
2017_475_ISEGS	American Pipit	AMPI	Carcass Survey	11/20/2017	11/20/2017	Feather spot	2 days	Feather Spot size small consisting of 7 retricies and 4 primaries. No evidence of collision or singe.	Unknown		1	Heliostat	640425, 3933673	NA
2017_476_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	11/22/2017	11/22/2017	Broken up	3-6 days	Broken up carcass consisting of 2 unknown flight feathers and several clumps of feathers connected by skin. Flight feathers curled and tips of some body feathers singed.	Scorched or singed	Unk	1	Powerblock	640372, 3933487	NA
2017_477_ISEGS	Costa's Hummingbird	COHU	Carcass Survey	11/22/2017	11/22/2017	Dead, fresh (eyes moist)	0-8 hours	Whole carcass with evidence of singe. Curling to all major flight feathers in wing and tail. Singe on 90% of body.	Scorched or singed	2	1	Powerblock	640322, 3933517	NA
2017_478_ISEGS	Western Meadowlark	WEME	Carcass Survey	11/29/2017	11/29/2017	Feather spot	3-6 days	Feather spot size small consisting of 50+ body feathers, 4 primaries, 1 secondary. No evidence of singe or collision	Unknown		2	Heliostat	638403, 3935840	NA
2017_479_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	11/29/2017	11/29/2017	Broken up	3-6 days	Broken up carcass consisting of 6 body feathers held together by dried flesh. No evidence of collision or singe.	Unknown		2	Heliostat	638534, 3935993	NA
2017_480_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	11/29/2017	11/29/2017	Feather spot	3-6 days	Feather spot size small consisting of 11+ body feathers, 1 primary, and 1 retrix. Evidence of singe on tips of body feathers and on inner webbing of retrix.	Scorched or singed	1	2	Heliostat	638672, 3936013	NA
2017_481_ISEGS	Yellow-rumped Warbler	YRWA	Carcass Survey	11/29/2017	11/29/2017	Broken up	3-6 days	Broken up carcass consisting of 10+ crown feathers attached by skin, 21 contour feathers, 2 primaries, 5 secondaries, and 1 wing covert. No evidence of singe or collision	Unknown		2	Heliostat	638809, 3935793	NA
2017_482_ISEGS	Unknown Small Bird	UNID	Incident	11/29/2017	11/29/2017	Broken up	1 month +	Broken up carcass consisting of pelvic girdle with attached rectrices and both legs, detached sternum, body feathers. No evidence of collision or singe.	Unknown		1	Powerblock	640289, 3933544	NA
2017_483_ISEGS	Unknown Grebe	UNGR	Carcass Survey	12/4/2017	12/4/2017	Broken up	2 weeks	Broken up carcass consisting of 30 body feathers attached by dried skin. No evidence of collision or singe.	Unknown		3	Heliostat	637370, 3938081	NA
2017_484_ISEGS	Cassin's Finch	CAFI	Carcass Survey	12/4/2017	12/4/2017	Alive, injured	8-24 hours	Alive. No evidence of collision or singe.	Unknown		3	Heliostat	637250, 3937962	NA
2017_485_ISEGS	American Pipit	AMPI	Carcass Survey	12/4/2017	12/4/2017	Feather spot	3-6 days	Feather spot size large consisting of 18 body feathers, 4 rectrices, 1 primary, and 2 secondaries. No evidence of collision or singe.	Unknown		3	Heliostat	637276, 3937793	NA
2017_486_ISEGS	Western Meadowlark	WEME	Carcass Survey	12/4/2017	12/4/2017	Feather spot	2 days	Feather spot size large consisting of 33 body feathers. No evidence of collision or singe.	Unknown		3	Heliostat	637334, 3937701	NA
2017_487_ISEGS	Unidentified Small Bird	UNID	Carcass Survey	12/6/2017	12/6/2017	Feather spot	3-6 days	Feather spot size small consisting of 50 body feathers. Evidence of singe on tips of many feathers.	Scorched or singed	3	3	Powerblock	637457, 3937925	NA
2017_488_ISEGS	Yellow-rumped Warbler	YRWA	Carcass Survey	12/11/2017	12/11/2017	Feather spot	3-6 days	Feather spot size small consisting of 10 rectrices, 11 primaries, 4 secondaries, and 15 contour feathers. Evidence of curling to	Scorched or singed	Unk	1	Powerblock	640407, 3933490	NA

USFWS #	Common Name	Species Code	How Found	Detection Date	Collection Date	Condition	Time Since Death/Injury	Description of Carcass/Injury	Cause of Death/Injury	Burn Grade	Unit	Nearest Project Feature	UTM Coordinates	SPUT Revisions
								rects, singe to primaries and secondaries.						

**Appendix B. Additional Detection Data for Fatality Estimates and Documentation of Fatality Estimates in which Each Detection was Included.**

USFWS #	Species Code	Location	Distance from Tower (m)	Bird Size	Model Size	Cause of Death	How Found	Time Since Last Survey (days)	Used in Estimator	Tower Area	Power Block	Inner HD	Heliostat Area	Estimator Notes
2016_703_ISEGS	VERD	Power Block	22	Small	Small Carcass	singed	Fatality Search	20	No	X	X			Older than Search Interval
2016_704_ISEGS	TRES	Power Block	8	Small	Small Carcass	singed	Fatality Search	20	No	X	X			Older than Search Interval
2016_705_ISEGS	TRES	Power Block	16	Small	Small Carcass	singed	Fatality Search	20	No	X	X			Older than Search Interval
2016_706_ISEGS	UNSP	Power Block	69	Small	Feather Spot	unknown	Fatality Search	20	Yes	X	X			
2016_707_ISEGS	GWTE	Outer Segment	1130	Large	Feather Spot	unknown	Fatality Search	19	Yes				X	
2016_708_ISEGS	UNID	Inner HD	192	Small	Feather Spot	unknown	Fatality Search	22	Yes	X		X		
2016_709_ISEGS	UNID	Inner HD	220	Small	Feather Spot	unknown	Fatality Search	22	Yes	X		X		
2016_710_ISEGS	WEME	Inner HD	192	Small	Feather Spot	unknown	Fatality Search	22	Yes	X		X		
2016_711_ISEGS	UNWA	Inner HD	131	Small	Small Carcass	singed	Fatality Search	22	Yes	X		X		
2016_712_ISEGS	AMPI	Inner HD	347	Small	Feather Spot	unknown	Fatality Search	21	Yes	X		X		
2016_713_ISEGS	YRWA	Power Block	7	Small	Small Carcass	singed	Incidental	1(1)	No	X	X			Older than Search Interval
2017_001_ISEGS	UNID	Inner HD	111	Small	Feather Spot	unknown	Fatality Search	20	Yes	X		X		
2017_002_ISEGS	AMPI	Inner HD	224	Small	Feather Spot	unknown	Fatality Search	20	Yes	X		X		
2017_003_ISEGS	AMRO	Power Block	86	Small	Small Carcass	unknown	Fatality Search	23	Yes	X	X			
2017_004_ISEGS	WCSP	Power Block	70	Small	Small Carcass	unknown	Fatality Search	20	Yes	X	X			
2017_005_ISEGS	EAGR	Power Block	0	Large	Large Carcass	unknown	Incidental	1(1)	No	X	X			Older than Search Interval
2017_006_ISEGS	LOSH	Power Block	10	Small	Feather Spot	collision	Fatality Search	19	Yes	X	X			
2017_007_ISEGS	HOFI	Power Block	88	Small	Small Carcass	singed	Incidental	1(1)	Yes	X	X			
2017_008_ISEGS	UNSP	Power Block	64	Small	Feather Spot	unknown	Fatality Search	23	Yes	X	X			
2017_009_ISEGS	WCSP	Inner HD	168	Small	Feather Spot	unknown	Fatality Search	22	Yes	X		X		
2017_010_ISEGS	ROPI	Power Block	75	Large	Large Carcass	singed	Incidental	1(1)	Yes	X	X			
2017_011_ISEGS	UNID	Power Block	31	Small	Feather Spot	singed	Fatality Search	19	Yes	X	X			

USFWS #	Species Code	Location	Distance from Tower (m)	Bird Size	Model Size	Cause of Death	How Found	Time Since Last Survey (days)	Used in Estimator	Tower Area	Power Block	Inner HD	Heliostat Area	Estimator Notes
2017_012_ISEGS	HOFI	Outer Segment	723	Small	Small Carcass	unknown	Fatality Search	19	Yes				X	
2017_013_ISEGS	LOSH	Outer Segment	1112	Small	Small Carcass	unknown	Fatality Search	15	Yes				X	
2017_014_ISEGS	UNID	ACC	50	Small	Small Carcass	singed	Fatality Search	8	Yes	X	X			
2017_015_ISEGS	UNID	ACC	50	Small	Small Carcass	singed	Fatality Search	8	Yes	X	X			
2017_016_ISEGS	COHU	Power Block	24	Small	Small Carcass	singed	Fatality Search	14	Yes	X	X			
2017_017_ISEGS	ECDO	Outer Segment	1160	Large	Feather Spot	collision	Fatality Search	9	Yes				X	
2017_018_ISEGS	SATH	Outer Segment	733	Small	Feather Spot	unknown	Fatality Search	7	Yes				X	
2017_019_ISEGS	VGSW	Power Block	0	Small	Small Carcass	singed	Incidental	1(1)	Yes	X	X			
2017_020_ISEGS	UNHU	Power Block	53	Small	Feather Spot	singed	Fatality Search	6	Yes	X	X			
2017_021_ISEGS	UNID	Power Block	52	Small	Feather Spot	unknown	Fatality Search	6	Yes	X	X			
2017_022_ISEGS	AMKE	Inner Segment	443	Large	Feather Spot	singed	Fatality Search	8	Yes				X	
2017_023_ISEGS	TRES	ACC	56	Small	Small Carcass	collision	Fatality Search	7	Yes	X	X			
2017_024_ISEGS	COHU	Power Block	32	Small	Small Carcass	singed	Fatality Search	7	Yes	X	X			
2017_025_ISEGS	BHCO	Power Block	34	Small	Small Carcass	singed	Fatality Search	7	No	X	X			Older than Search Interval
2017_026_ISEGS	HOLA	Inner HD	228	Small	Small Carcass	collision	Fatality Search	7	Yes	X		X		
2017_027_ISEGS	UNLB	Outer Segment	799	Large	Feather Spot	unknown	Fatality Search	10	Yes				X	
2017_028_ISEGS	COHU	Inner HD	255	Small	Small Carcass	unknown	Fatality Search	7	Yes	X		X		
2017_029_ISEGS	UNID	Power Block	23	Small	Feather Spot	singed	Fatality Search	7	Yes	X	X			
2017_030_ISEGS	MODO	Outer Segment	1887	Large	Feather Spot	unknown	Fatality Search	7	Yes				X	
2017_031_ISEGS	HOFI	Inner HD	225	Small	Small Carcass	singed	Fatality Search	7	Yes	X		X		
2017_032_ISEGS	CLSW	Inner HD	221	Small	Small Carcass	collision	Fatality Search	7	Yes	X		X		
2017_033_ISEGS	COPO	Outer Segment	1080	Small	Feather Spot	unknown	Fatality Search	6	Yes				X	
2017_034_ISEGS	UNID	Power Block	23	Small	Feather Spot	singed	Fatality Search	9	Yes	X	X			

USFWS #	Species Code	Location	Distance from Tower (m)	Bird Size	Model Size	Cause of Death	How Found	Time Since Last Survey (days)	Used in Estimator	Tower Area	Power Block	Inner HD	Heliostat Area	Estimator Notes
2017_035_ISEGS	COHU	ACC	45	Small	Small Carcass	singed	Fatality Search		7 Yes	X	X			
2017_036_ISEGS	YRWA	Power Block	28	Small	Small Carcass	singed	Incidental	1(1)	No	X	X			Older than Search Interval
2017_037_ISEGS	ECDO	Outside Search - COLOSEUM ROAD	1189	Large	Feather Spot	unknown	Incidental	NA	No					Outside Standard Search Area
2017_038_ISEGS	UNGR	Outer Segment	849	Large	Feather Spot	unknown	Fatality Search		9 No				X	Older than Search Interval
2017_039_ISEGS	MOD0	Inner HD	142	Large	Feather Spot	unknown	Fatality Search		7 Yes	X		X		
2017_040_ISEGS	COHU	Power Block	116	Small	Small Carcass	singed	Fatality Search		7 Yes	X	X			
2017_041_ISEGS	UNID	Power Block	124	Small	Feather Spot	singed	Fatality Search		7 Yes	X	X			
2017_042_ISEGS	YRWA	ACC	67	Small	Small Carcass	singed	Fatality Search		7 Yes	X	X			
2017_043_ISEGS	AMRO	Power Block	69	Small	Feather Spot	singed	Fatality Search		7 No	X	X			Older than Search Interval
2017_044_ISEGS	YRWA	Power Block	50	Small	Small Carcass	singed	Fatality Search		5 Yes	X	X			
2017_045_ISEGS	UNDV	Inner Segment	505	Large	Feather Spot	unknown	Fatality Search		6 Yes				X	
2017_046_ISEGS	MOD0	Inner HD	244	Large	Large Carcass	collision	Fatality Search		7 Yes	X		X		
2017_047_ISEGS	MOD0	Inner HD	162	Large	Feather Spot	unknown	Fatality Search		8 Yes	X		X		
2017_048_ISEGS	HOOR	Power Block	27	Small	Small Carcass	singed	Incidental	1(1)	Yes	X	X			
2017_049_ISEGS	MOD0	Outer Segment	717	Large	Feather Spot	collision	Fatality Search		6 Yes				X	
2017_050_ISEGS	BCHU	Inner HD	107	Small	Small Carcass	singed	Fatality Search		7 Yes	X		X		
2017_051_ISEGS	UNID	Inner HD	197	Small	Small Carcass	singed	Fatality Search		7 Yes	X		X		
2017_052_ISEGS	YWAR	Power Block	14	Small	Small Carcass	singed	Incidental	1(1)	No	X	X			Older than Search Interval
2017_053_ISEGS	MOD0	Power Block	68	Large	Feather Spot	unknown	Fatality Search		7 No	X	X			Older than Search Interval
2017_054_ISEGS	NRWS	Power Block	10	Small	Small Carcass	singed	Fatality Search		7 Yes	X	X			
2017_055_ISEGS	MOD0	Inner HD	208	Large	Large Carcass	collision	Fatality Search		5 Yes	X		X		
2017_056_ISEGS	UNWA	Power Block	27	Small	Feather Spot	singed	Fatality Search		6 Yes	X	X			
2017_057_ISEGS	MOD0	Inner HD	248	Large	Feather Spot	unknown	Fatality Search		7 Yes	X		X		

USFWS #	Species Code	Location	Distance from Tower (m)	Bird Size	Model Size	Cause of Death	How Found	Time Since Last Survey (days)	Used in Estimator	Tower Area	Power Block	Inner HD	Heliostat Area	Estimator Notes
2017_058_ISEGS	UNDU	Power Block	100	Large	Feather Spot	singed	Fatality Search	6	No	X	X			Older than Search Interval
2017_059_ISEGS	UNSP	Inner HD	231	Small	Feather Spot	singed	Fatality Search	5	Yes	X		X		
2017_060_ISEGS	WIWA	Power Block	48	Small	Small Carcass	singed	Fatality Search	7	Yes	X	X			
2017_061_ISEGS	UNGR	Power Block	31	Large	Feather Spot	unknown	Fatality Search	8	Yes	X	X			
2017_062_ISEGS	UNID	Power Block	31	Small	Feather Spot	unknown	Fatality Search	8	No	X	X			Older than Search Interval
2017_063_ISEGS	UNWA	Power Block	18	Small	Feather Spot	singed	Fatality Search	7	Yes	X	X			
2017_064_ISEGS	AMRO	Power Block	71	Small	Feather Spot	unknown	Fatality Search	8	No	X	X			Older than Search Interval
2017_065_ISEGS	WIWA	Power Block	35	Small	Small Carcass	singed	Fatality Search	7	Yes	X	X			
2017_066_ISEGS	UNSB	Inner HD	116	Small	Feather Spot	singed	Fatality Search	6	Yes	X		X		
2017_067_ISEGS	YRWA	Inner HD	252	Small	Small Carcass	singed	Fatality Search	6	Yes	X		X		
2017_068_ISEGS	EAGR	Inner HD	224	Large	Large Carcass	collision	Fatality Search	6	Yes	X		X		
2017_069_ISEGS	UNID	Inner HD	210	Small	Feather Spot	unknown	Fatality Search	7	No	X		X		Older than Search Interval
2017_070_ISEGS	UNDV	Power Block	102	Large	Feather Spot	singed	Fatality Search	7	Yes	X	X			
2017_071_ISEGS	UNID	Power Block	103	Small	Feather Spot	unknown	Fatality Search	7	No	X	X			Older than Search Interval
2017_072_ISEGS	BARS	ACC	46	Small	Small Carcass	singed	Fatality Search	8	Yes	X	X			
2017_073_ISEGS	UNID	Power Block	56	Small	Feather Spot	singed	Fatality Search	8	Yes	X	X			
2017_074_ISEGS	EAGR	Inner HD	121	Large	Feather Spot	collision	Fatality Search	7	Yes	X		X		
2017_075_ISEGS	BTSP	Outer Segment	1153	Small	Small Carcass	collision	Fatality Search	8	Yes				X	
2017_076_ISEGS	LENI	Outside Search - Admin Laydown area	982	Small	Small Carcass	unknown	Incidental	NA	No					Outside Standard Search Area
2017_077_ISEGS	CAHU	ACC	77	Small	Small Carcass	singed	Fatality Search	7	Yes	X	X			
2017_078_ISEGS	WIWA	Power Block	84	Small	Small Carcass	singed	Fatality Search	7	No	X	X			Older than Search Interval
2017_079_ISEGS	UNID	Power Block	44	Small	Feather Spot	singed	Fatality Search	8	No	X	X			Older than Search Interval
2017_080_ISEGS	LENI	Outside Search - Colosseum Rd.	1321	Small	Small Carcass	collision	Incidental	NA	No					Outside Standard Search Area

USFWS #	Species Code	Location	Distance from Tower (m)	Bird Size	Model Size	Cause of Death	How Found	Time Since Last Survey (days)	Used in Estimator	Tower Area	Power Block	Inner HD	Heliostat Area	Estimator Notes
2017_081_ISEGS	VGSW	Power Block	37	Small	Small Carcass	singed	Incidental	1(1)	Yes	X	X			
2017_082_ISEGS	COHU	Power Block	93	Small	Small Carcass	singed	Fatality Search	16	Yes	X	X			
2017_083_ISEGS	RTHA	Power Block	26	Large	Large Carcass	unknown	Incidental	1(1)	Yes	X	X			
2017_084_ISEGS	VERD	ACC	53	Small	Small Carcass	singed	Fatality Search	20	Yes	X	X			
2017_085_ISEGS	UNSW	Power Block	17	Small	Feather Spot	singed	Fatality Search	20	Yes	X	X			
2017_086_ISEGS	NOMO	Inner HD	254	Small	Feather Spot	unknown	Fatality Search	22	Yes	X		X		
2017_087_ISEGS	UNID	Inner HD	206	Small	Feather Spot	unknown	Fatality Search	22	Yes	X		X		
2017_088_ISEGS	CLSW	Power Block	6	Small	Small Carcass	singed	Incidental	1(1)	Yes	X	X			
2017_089_ISEGS	CLSW	Power Block	74	Small	Small Carcass	singed	Incidental	1(1)	Yes	X	X			
2017_090_ISEGS	NOMO	ACC	41	Small	Small Carcass	other (entrapment)	Incidental	1	Yes	X	X			
2017_091_ISEGS	VERD	ACC	41	Small	Small Carcass	singed	Fatality Search	25	Yes	X	X			
2017_092_ISEGS	HOFI	ACC	49	Small	Small Carcass	singed	Fatality Search	19	Yes	X	X			
2017_093_ISEGS	ANHU	ACC	61	Small	Small Carcass	singed	Fatality Search	19	Yes	X	X			
2017_094_ISEGS	CLSW	ACC	65	Small	Small Carcass	other (entrapment)	Fatality Search	19	Yes	X	X			
2017_095_ISEGS	YWAR	Power Block	23	Small	Feather Spot	unknown	Fatality Search	25	Yes	X	X			
2017_096_ISEGS	NOMO	Power Block	66	Small	Small Carcass	singed	Fatality Search	19	Yes	X	X			
2017_097_ISEGS	VERD	Power Block	30	Small	Small Carcass	singed	Fatality Search	25	Yes	X	X			
2017_098_ISEGS	BTSP	Power Block	25	Small	Feather Spot	singed	Fatality Search	19	Yes	X	X			
2017_099_ISEGS	NOMO	Power Block	42	Small	Feather Spot	singed	Fatality Search	19	Yes	X	X			
2017_100_ISEGS	BTSP	Power Block	4	Small	Feather Spot	singed	Fatality Search	19	Yes	X	X			
2017_101_ISEGS	UNSW	Power Block	64	Small	Feather Spot	unknown	Fatality Search	19	Yes	X	X			
2017_102_ISEGS	UNWA	Power Block	18	Small	Small Carcass	unknown	Fatality Search	25	No	X	X			Older than Search Interval
2017_103_ISEGS	UNID	Power Block	37	Small	Small Carcass	unknown	Fatality Search	25	No	X	X			Older than Search Interval

USFWS #	Species Code	Location	Distance from Tower (m)	Bird Size	Model Size	Cause of Death	How Found	Time Since Last Survey (days)	Used in Estimator	Tower Area	Power Block	Inner HD	Heliostat Area	Estimator Notes
2017_104_ISEGS	MODO	Inner HD	188	Large	Feather Spot	unknown	Fatality Search	22	Yes	X		X		
2017_105_ISEGS	COHU	ACC	41	Small	Small Carcass	singed	Fatality Search	27	Yes	X	X			
2017_106_ISEGS	BTSP	ACC	75	Small	Small Carcass	collision	Fatality Search	27	Yes	X	X			
2017_107_ISEGS	TRES	Power Block	43	Small	Small Carcass	singed	Fatality Search	27	Yes	X	X			
2017_108_ISEGS	UNSW	Power Block	66	Small	Small Carcass	singed	Incidental	1(1)	No	X	X			Older than Search Interval
2017_109_ISEGS	BUOR	Power Block	34	Small	Small Carcass	singed	Incidental	1(1)	Yes	X	X			
2017_110_ISEGS	TRES	Power Block	67	Small	Small Carcass	singed	Incidental	1(1)	Yes	X	X			
2017_111_ISEGS	TRES	Power Block	90	Small	Small Carcass	unknown	Fatality Search	21	Yes	X	X			
2017_112_ISEGS	NOMO	Power Block	63	Small	Small Carcass	singed	Incidental	1(1)	No	X	X			Older than Search Interval
2017_113_ISEGS	BUOR	Power Block	0	Small	Small Carcass	singed	Incidental	1(1)	No	X	X			Older than Search Interval
2017_114_ISEGS	CLSW	ACC	73	Small	Small Carcass	singed	Fatality Search	21	Yes	X	X			
2017_115_ISEGS	VERD	ACC	30	Small	Small Carcass	singed	Fatality Search	21	Yes	X	X			
2017_116_ISEGS	UNHU	ACC	45	Small	Small Carcass	singed	Fatality Search	21	Yes	X	X			
2017_117_ISEGS	WETA	ACC	49	Small	Small Carcass	singed	Fatality Search	21	Yes	X	X			
2017_118_ISEGS	RUHU	ACC	51	Small	Small Carcass	singed	Fatality Search	21	Yes	X	X			
2017_119_ISEGS	UNID	Power Block	46	Small	Feather Spot	singed	Fatality Search	21	Yes	X	X			
2017_120_ISEGS	YWAR	Power Block	63	Small	Small Carcass	singed	Fatality Search	21	Yes	X	X			
2017_121_ISEGS	UNSW	Power Block	27	Small	Feather Spot	unknown	Fatality Search	21	Yes	X	X			
2017_122_ISEGS	YWAR	Power Block	60	Small	Small Carcass	singed	Fatality Search	21	Yes	X	X			
2017_123_ISEGS	NOMO	Power Block	27	Small	Feather Spot	unknown	Fatality Search	21	Yes	X	X			
2017_124_ISEGS	UNID	Power Block	24	Small	Feather Spot	singed	Fatality Search	21	No	X	X			Older than Search Interval
2017_125_ISEGS	UNSW	Power Block	33	Small	Feather Spot	singed	Fatality Search	21	Yes	X	X			
2017_126_ISEGS	UNID	Power Block	27	Small	Feather Spot	unknown	Fatality Search	21	Yes	X	X			

USFWS #	Species Code	Location	Distance from Tower (m)	Bird Size	Model Size	Cause of Death	How Found	Time Since Last Survey (days)	Used in Estimator	Tower Area	Power Block	Inner HD	Heliostat Area	Estimator Notes
2017_127_ISEGS	AMKE	Power Block	98	Large	Feather Spot	singed	Fatality Search	21	Yes	X	X			
2017_128_ISEGS	UNID	Power Block	98	Small	Feather Spot	unknown	Fatality Search	21	Yes	X	X			
2017_129_ISEGS	NRWS	Inner HD	188	Small	Feather Spot	singed	Fatality Search	21	Yes	X		X		
2017_130_ISEGS	BWTE	Inner HD	109	Large	Feather Spot	singed	Fatality Search	21	Yes	X		X		
2017_131_ISEGS	TRES	ACC	47	Small	Small Carcass	singed	Fatality Search	21	Yes	X	X			
2017_132_ISEGS	BTGN	ACC	56	Small	Small Carcass	singed	Fatality Search	21	Yes	X	X			
2017_133_ISEGS	YWAR	Power Block	36	Small	Small Carcass	singed	Incidental	1(1)	Yes	X	X			
2017_134_ISEGS	BTSP	Power Block	61	Small	Small Carcass	singed	Incidental	1(1)	Yes	X	X			
2017_135_ISEGS	LAZB	Power Block	44	Small	Small Carcass	singed	Incidental	1(1)	Yes	X	X			
2017_136_ISEGS	BTGN	Power Block	57	Small	Small Carcass	singed	Incidental	1(1)	No	X	X			Older than Search Interval
2017_137_ISEGS	NRWS	Power Block	0	Small	Small Carcass	singed	Incidental	1(1)	Yes	X	X			
2017_138_ISEGS	NRWS	Power Block	44	Small	Small Carcass	singed	Incidental	1(1)	Yes	X	X			
2017_139_ISEGS	NRWS	Inner HD	203	Small	Feather Spot	unknown	Fatality Search	21	Yes	X		X		
2017_140_ISEGS	UNGR	Inner HD	250	Large	Feather Spot	unknown	Fatality Search	21	Yes	X		X		
2017_141_ISEGS	WETA	Inner HD	235	Small	Feather Spot	singed	Fatality Search	21	Yes	X		X		
2017_142_ISEGS	LENI	Outside Search - Colosseum Rd	2015	Small	Small Carcass	unknown	Incidental	NA	No					Outside Standard Search Area
2017_143_ISEGS	UNSW	Inner HD	209	Small	Feather Spot	singed	Fatality Search	21	Yes	X		X		
2017_144_ISEGS	MODO	Inner HD	211	Large	Feather Spot	unknown	Fatality Search	21	Yes	X		X		
2017_145_ISEGS	UNSW	Inner HD	178	Small	Feather Spot	unknown	Fatality Search	21	Yes	X		X		
2017_146_ISEGS	UNSW	Inner HD	185	Small	Feather Spot	singed	Fatality Search	21	Yes	X		X		
2017_147_ISEGS	GRRO	Outside Search - West Fence Line	1314	Large	Large Carcass	unknown	Incidental	NA	No					Outside Standard Search Area
2017_148_ISEGS	CLSW	Power Block	0	Small	Small Carcass	singed	Incidental	1(1)	No	X	X			Older than Search Interval
2017_149_ISEGS	BTSP	Power Block	0	Small	Small Carcass	singed	Incidental	1(1)	No	X	X			Older than Search Interval

USFWS #	Species Code	Location	Distance from Tower (m)	Bird Size	Model Size	Cause of Death	How Found	Time Since Last Survey (days)	Used in Estimator	Tower Area	Power Block	Inner HD	Heliostat Area	Estimator Notes
2017_150_ISEGS	BTSP	Power Block	0	Small	Small Carcass	singed	Incidental	1(1)	Yes	X	X			
2017_151_ISEGS	UNSW	Power Block	0	Small	Small Carcass	singed	Incidental	1(1)	No	X	X			Older than Search Interval
2017_152_ISEGS	TRES	Power Block	0	Small	Small Carcass	singed	Incidental	1(1)	No	X	X			Older than Search Interval
2017_153_ISEGS	TRES	Power Block	0	Small	Small Carcass	singed	Incidental	1(1)	No	X	X			Older than Search Interval
2017_154_ISEGS	BTSP	Power Block	0	Small	Small Carcass	singed	Incidental	1(1)	No	X	X			Older than Search Interval
2017_155_ISEGS	TRES	Power Block	118	Small	Small Carcass	singed	Incidental	1(1)	Yes	X	X			
2017_156_ISEGS	BTSP	Power Block	26	Small	Small Carcass	singed	Incidental	1(1)	No	X	X			Older than Search Interval
2017_157_ISEGS	UNID	Power Block	0	Small	Small Carcass	singed	Incidental	1(1)	No	X	X			Older than Search Interval
2017_158_ISEGS	UNWA	Outside Search - Tower	0	Small	Small Carcass	singed	Incidental	NA	No					Outside Standard Search Area
2017_159_ISEGS	BHCO	Power Block	39	Small	Small Carcass	singed	Incidental	1(1)	No	X	X			Older than Search Interval
2017_160_ISEGS	CHSP	Power Block	55	Small	Small Carcass	singed	Incidental	1(1)	Yes	X	X			
2017_161_ISEGS	CLSW	Power Block	72	Small	Small Carcass	singed	Incidental	1(1)	No	X	X			Older than Search Interval
2017_162_ISEGS	TEAL	Inner HD	186	Large	Feather Spot	unknown	Fatality Search	20	Yes	X		X		
2017_163_ISEGS	UNWA	Inner HD	162	Small	Feather Spot	singed	Fatality Search	20	Yes	X		X		
2017_164_ISEGS	WTSW	Inner HD	185	Small	Feather Spot	singed	Fatality Search	20	Yes	X		X		
2017_165_ISEGS	YWAR	ACC	39	Small	Small Carcass	singed	Fatality Search	22	Yes	X	X			
2017_166_ISEGS	YWAR	ACC	58	Small	Small Carcass	singed	Fatality Search	22	Yes	X	X			
2017_167_ISEGS	BHCO	ACC	58	Small	Small Carcass	singed	Fatality Search	22	Yes	X	X			
2017_168_ISEGS	YWAR	Power Block	66	Small	Small Carcass	singed	Fatality Search	22	Yes	X	X			
2017_169_ISEGS	UNID	Power Block	68	Small	Feather Spot	singed	Fatality Search	20	Yes	X	X			
2017_170_ISEGS	BTGN	Power Block	31	Small	Small Carcass	singed	Fatality Search	22	Yes	X	X			
2017_171_ISEGS	UNID	Power Block	39	Small	Feather Spot	singed	Fatality Search	22	Yes	X	X			
2017_172_ISEGS	UNSW	Power Block	39	Small	Feather Spot	singed	Fatality Search	22	Yes	X	X			

USFWS #	Species Code	Location	Distance from Tower (m)	Bird Size	Model Size	Cause of Death	How Found	Time Since Last Survey (days)	Used in Estimator	Tower Area	Power Block	Inner HD	Heliostat Area	Estimator Notes
2017_173_ISEGS	NRWS	Power Block	114	Small	Feather Spot	singed	Fatality Search	22	Yes	X	X			
2017_174_ISEGS	ROPI	Power Block	93	Large	Large Carcass	singed	Fatality Search	20	Yes	X	X			
2017_175_ISEGS	YWAR	ACC	64	Small	Small Carcass	singed	Fatality Search	23	Yes	X	X			
2017_176_ISEGS	NAWA	ACC	50	Small	Small Carcass	singed	Fatality Search	23	Yes	X	X			
2017_177_ISEGS	TRES	ACC	58	Small	Small Carcass	singed	Fatality Search	23	Yes	X	X			
2017_178_ISEGS	BHCO	ACC	46	Small	Small Carcass	singed	Fatality Search	23	Yes	X	X			
2017_179_ISEGS	NRWS	Inner HD	217	Small	Feather Spot	singed	Fatality Search	20	Yes	X		X		
2017_180_ISEGS	LAZB	Power Block	56	Small	Small Carcass	singed	Incidental	1(1)	Yes	X	X			
2017_181_ISEGS	NRWS	Power Block	68	Small	Small Carcass	singed	Incidental	1(1)	Yes	X	X			
2017_182_ISEGS	YWAR	Power Block	69	Small	Small Carcass	singed	Incidental	1(1)	Yes	X	X			
2017_183_ISEGS	UNWA	Power Block	24	Small	Small Carcass	singed	Incidental	1(1)	No	X	X			Older than Search Interval
2017_184_ISEGS	BHCO	Inner HD	180	Small	Feather Spot	unknown	Fatality Search	7	Yes	X		X		
2017_185_ISEGS	YWAR	ACC	32	Small	Small Carcass	singed	Fatality Search	7	Yes	X	X			
2017_186_ISEGS	BRSP	ACC	45	Small	Small Carcass	singed	Fatality Search	7	Yes	X	X			
2017_187_ISEGS	BRSP	ACC	48	Small	Small Carcass	singed	Fatality Search	7	Yes	X	X			
2017_188_ISEGS	UNSW	ACC	59	Small	Small Carcass	singed	Fatality Search	7	Yes	X	X			
2017_189_ISEGS	HEWA	ACC	71	Small	Small Carcass	singed	Fatality Search	7	Yes	X	X			
2017_190_ISEGS	UNID	Power Block	113	Small	Feather Spot	singed	Fatality Search	7	No	X	X			Older than Search Interval
2017_191_ISEGS	YWAR	Inner HD	228	Small	Feather Spot	singed	Fatality Search	6	Yes	X		X		
2017_192_ISEGS	BANS	ACC	45	Small	Small Carcass	collision	Fatality Search	7	Yes	X	X			
2017_193_ISEGS	AMKE	Power Block	125	Large	Feather Spot	singed	Fatality Search	7	No	X	X			Older than Search Interval
2017_194_ISEGS	YWAR	Power Block	73	Small	Small Carcass	singed	Fatality Search	7	Yes	X	X			
2017_195_ISEGS	UNID	Power Block	34	Small	Feather Spot	unknown	Fatality Search	7	No	X	X			Older than Search Interval

USFWS #	Species Code	Location	Distance from Tower (m)	Bird Size	Model Size	Cause of Death	How Found	Time Since Last Survey (days)	Used in Estimator	Tower Area	Power Block	Inner HD	Heliostat Area	Estimator Notes
2017_196_ISEGS	WIWA	Power Block	26	Small	Small Carcass	singed	Fatality Search		7 Yes	X	X			
2017_197_ISEGS	UNWA	Power Block	28	Small	Small Carcass	singed	Fatality Search		7 Yes	X	X			
2017_198_ISEGS	NAWA	ACC	53	Small	Small Carcass	singed	Fatality Search		8 Yes	X	X			
2017_199_ISEGS	UNWA	ACC	52	Small	Small Carcass	singed	Fatality Search		8 Yes	X	X			
2017_200_ISEGS	UNSP	ACC	54	Small	Small Carcass	singed	Fatality Search		8 Yes	X	X			
2017_201_ISEGS	UNSW	Power Block	19	Small	Small Carcass	singed	Incidental	1(1)	No	X	X			Older than Search Interval
2017_202_ISEGS	UNID	Power Block	83	Small	Feather Spot	singed	Fatality Search		8 Yes	X	X			
2017_203_ISEGS	UNHU	ACC	63	Small	Small Carcass	singed	Fatality Search		8 Yes	X	X			
2017_204_ISEGS	UNID	Power Block	48	Small	Feather Spot	singed	Fatality Search		8 Yes	X	X			
2017_205_ISEGS	TOWA	Power Block	7	Small	Small Carcass	unknown	Fatality Search		8 Yes	X	X			
2017_206_ISEGS	MODO	Power Block	21	Large	Large Carcass	unknown	Incidental	1(1)	Yes	X	X			
2017_207_ISEGS	YWAR	ACC	51	Small	Small Carcass	singed	Fatality Search		8 Yes	X	X			
2017_208_ISEGS	NRWS	ACC	36	Small	Small Carcass	other (entrapment)	Fatality Search		8 Yes	X	X			
2017_209_ISEGS	RUHU	ACC	33	Small	Small Carcass	singed	Fatality Search		8 Yes	X	X			
2017_210_ISEGS	WETA	Inner HD	228	Small	Feather Spot	singed	Fatality Search		7 Yes	X		X		
2017_211_ISEGS	BHCO	ACC	52	Small	Small Carcass	singed	Fatality Search		8 Yes	X	X			
2017_212_ISEGS	UNSW	Power Block	10	Small	Feather Spot	singed	Fatality Search		8 No	X	X			Older than Search Interval
2017_213_ISEGS	NOMO	Power Block	22	Small	Feather Spot	singed	Fatality Search		8 Yes	X	X			
2017_214_ISEGS	BHCO	Inner HD	225	Small	Small Carcass	collision	Fatality Search		7 Yes	X		X		
2017_215_ISEGS	UNID	Inner HD	131	Small	Feather Spot	unknown	Fatality Search		7 No	X		X		Older than Search Interval
2017_216_ISEGS	BTSP	Power Block	0	Small	Small Carcass	singed	Incidental	1(1)	No	X	X			Older than Search Interval
2017_217_ISEGS	TRES	Power Block	0	Small	Small Carcass	singed	Incidental	1(1)	No	X	X			Older than Search Interval
2017_218_ISEGS	BTSP	Outside Search - Tower	0	Small	Small Carcass	singed	Incidental	NA	No					Outside Standard Search Area

USFWS #	Species Code	Location	Distance from Tower (m)	Bird Size	Model Size	Cause of Death	How Found	Time Since Last Survey (days)	Used in Estimator	Tower Area	Power Block	Inner HD	Heliostat Area	Estimator Notes
2017_219_ISEGS	BHCO	Power Block	0	Small	Small Carcass	singed	Incidental	1(1)	No	X	X			Older than Search Interval
2017_220_ISEGS	BUOR	Power Block	0	Small	Small Carcass	unknown	Incidental	1(1)	No	X	X			Older than Search Interval
2017_221_ISEGS	BRSP	ACC	41	Small	Small Carcass	singed	Fatality Search		7 Yes	X	X			
2017_222_ISEGS	YWAR	Power Block	41	Small	Small Carcass	singed	Fatality Search		7 Yes	X	X			
2017_223_ISEGS	UNID	Inner HD	161	Small	Feather Spot	singed	Fatality Search		8 Yes	X		X		
2017_224_ISEGS	UNID	Inner HD	198	Small	Feather Spot	singed	Fatality Search		8 Yes	X		X		
2017_225_ISEGS	NRWS	Power Block	27	Small	Small Carcass	singed	Fatality Search		7 Yes	X	X			
2017_226_ISEGS	YHBL	Inner HD	217	Small	Small Carcass	collision	Fatality Search		8 Yes	X		X		
2017_227_ISEGS	UNID	ACC	65	Small	Small Carcass	other (entrapment)	Fatality Search		7 Yes	X	X			
2017_228_ISEGS	WIWA	ACC	38	Small	Small Carcass	singed	Fatality Search		7 Yes	X	X			
2017_229_ISEGS	UNWA	Power Block	37	Small	Feather Spot	unknown	Fatality Search		7 No	X	X			Older than Search Interval
2017_230_ISEGS	UNID	Power Block	30	Small	Feather Spot	singed	Fatality Search		7 Yes	X	X			
2017_231_ISEGS	UNGR	Inner HD	248	Large	Feather Spot	singed	Fatality Search		8 No	X		X		Older than Search Interval
2017_232_ISEGS	TRES	ACC	39	Small	Small Carcass	singed	Fatality Search		7 Yes	X	X			
2017_233_ISEGS	VERD	ACC	45	Small	Small Carcass	singed	Fatality Search		7 Yes	X	X			
2017_234_ISEGS	BTGN	ACC	60	Small	Small Carcass	singed	Fatality Search		7 Yes	X	X			
2017_235_ISEGS	UNSW	Power Block	23	Small	Feather Spot	singed	Fatality Search		7 Yes	X	X			
2017_236_ISEGS	UNID	Power Block	33	Small	Feather Spot	unknown	Fatality Search		7 Yes	X	X			
2017_237_ISEGS	BUOR	Power Block	28	Small	Feather Spot	singed	Fatality Search		7 Yes	X	X			
2017_238_ISEGS	VGSW	ACC	40	Small	Small Carcass	singed	Fatality Search		6 Yes	X	X			
2017_239_ISEGS	NAWA	ACC	60	Small	Small Carcass	singed	Fatality Search		6 Yes	X	X			
2017_240_ISEGS	YWAR	Power Block	60	Small	Small Carcass	singed	Fatality Search		6 Yes	X	X			
2017_241_ISEGS	YWAR	ACC	62	Small	Small Carcass	other (entrapment)	Incidental		1 Yes	X	X			

USFWS #	Species Code	Location	Distance from Tower (m)	Bird Size	Model Size	Cause of Death	How Found	Time Since Last Survey (days)	Used in Estimator	Tower Area	Power Block	Inner HD	Heliostat Area	Estimator Notes
2017_242_ISEGS	BRSP	Power Block	31	Small	Small Carcass	singed	Fatality Search	6	Yes	X	X			
2017_243_ISEGS	UNID	Power Block	76	Small	Feather Spot	singed	Fatality Search	6	No	X	X			Older than Search Interval
2017_244_ISEGS	UNID	Power Block	22	Small	Small Carcass	singed	Fatality Search	6	No	X	X			Older than Search Interval
2017_245_ISEGS	NAWA	ACC	69	Small	Small Carcass	singed	Fatality Search	6	Yes	X	X			
2017_246_ISEGS	UNID	Power Block	20	Small	Feather Spot	unknown	Fatality Search	6	Yes	X	X			
2017_247_ISEGS	ROPI	Power Block	28	Large	Large Carcass	singed	Fatality Search	6	Yes	X	X			
2017_248_ISEGS	YWAR	Power Block	91	Small	Small Carcass	singed	Fatality Search	6	Yes	X	X			
2017_249_ISEGS	LAZB	Power Block	92	Small	Small Carcass	singed	Fatality Search	6	Yes	X	X			
2017_250_ISEGS	UNID	Power Block	31	Small	Feather Spot	singed	Fatality Search	6	Yes	X	X			
2017_251_ISEGS	UNID	Power Block	18	Small	Feather Spot	singed	Fatality Search	6	Yes	X	X			
2017_252_ISEGS	LAZB	Power Block	42	Small	Small Carcass	unknown	Incidental	1(1)	Yes	X	X			
2017_253_ISEGS	UNID	Inner HD	142	Small	Feather Spot	singed	Fatality Search	7	Yes	X		X		
2017_254_ISEGS	YWAR	Inner HD	155	Small	Feather Spot	singed	Fatality Search	7	No	X		X		Older than Search Interval
2017_255_ISEGS	GTTO	Inner HD	266	Small	Feather Spot	collision	Fatality Search	7	Yes	X		X		
2017_256_ISEGS	RUHU	Power Block	42	Small	Small Carcass	singed	Fatality Search	7	Yes	X	X			
2017_257_ISEGS	UNID	Power Block	42	Small	Feather Spot	unknown	Fatality Search	7	Yes	X	X			
2017_258_ISEGS	UNGR	Inner HD	243	Large	Feather Spot	unknown	Fatality Search	7	Yes	X		X		
2017_259_ISEGS	VERD	Power Block	70	Small	Small Carcass	singed	Fatality Search	7	Yes	X	X			
2017_260_ISEGS	UNID	Power Block	112	Small	Feather Spot	singed	Fatality Search	7	Yes	X	X			
2017_261_ISEGS	LASP	Inner HD	155	Small	Feather Spot	singed	Fatality Search	7	Yes	X		X		
2017_262_ISEGS	UNID	Power Block	112	Small	Small Carcass	unknown	Fatality Search	7	No	X	X			Older than Search Interval
2017_263_ISEGS	YWAR	Power Block	97	Small	Feather Spot	singed	Fatality Search	7	Yes	X	X			
2017_264_ISEGS	BGGN	Inner HD	165	Small	Small Carcass	singed	Fatality Search	7	Yes	X		X		

USFWS #	Species Code	Location	Distance from Tower (m)	Bird Size	Model Size	Cause of Death	How Found	Time Since Last Survey (days)	Used in Estimator	Tower Area	Power Block	Inner HD	Heliostat Area	Estimator Notes
2017_265_ISEGS	LAZB	Power Block	4	Small	Small Carcass	singed	Incidental	1(1)	Yes	X	X			
2017_266_ISEGS	YWAR	ACC	50	Small	Small Carcass	singed	Fatality Search		7 Yes	X	X			
2017_267_ISEGS	TOWA	ACC	63	Small	Small Carcass	singed	Fatality Search		7 Yes	X	X			
2017_268_ISEGS	YWAR	ACC	62	Small	Small Carcass	singed	Fatality Search		7 Yes	X	X			
2017_269_ISEGS	UNFL	ACC	83	Small	Small Carcass	singed	Fatality Search		7 Yes	X	X			
2017_270_ISEGS	UNID	Power Block	79	Small	Feather Spot	singed	Fatality Search		7 Yes	X	X			
2017_271_ISEGS	UNWA	Power Block	31	Small	Feather Spot	unknown	Fatality Search		7 Yes	X	X			
2017_272_ISEGS	UNID	Power Block	27	Small	Feather Spot	unknown	Fatality Search		7 Yes	X	X			
2017_273_ISEGS	NAWA	Inner HD	222	Small	Small Carcass	unknown	Fatality Search		6 Yes	X		X		
2017_274_ISEGS	BARS	Inner HD	150	Small	Feather Spot	singed	Fatality Search		6 Yes	X		X		
2017_275_ISEGS	UNID	Power Block	23	Small	Feather Spot	singed	Fatality Search		7 Yes	X	X			
2017_276_ISEGS	UNID	Power Block	20	Small	Small Carcass	singed	Fatality Search		7 Yes	X	X			
2017_277_ISEGS	NRWS	Power Block	16	Small	Feather Spot	singed	Fatality Search		7 Yes	X	X			
2017_278_ISEGS	UNSW	Power Block	28	Small	Feather Spot	singed	Fatality Search		7 Yes	X	X			
2017_279_ISEGS	YRWA	Inner HD	217	Small	Feather Spot	singed	Fatality Search		6 Yes	X		X		
2017_280_ISEGS	OCWA	ACC	64	Small	Small Carcass	singed	Fatality Search		7 Yes	X	X			
2017_281_ISEGS	UNID	Power Block	12	Small	Feather Spot	singed	Fatality Search		7 Yes	X	X			
2017_282_ISEGS	BGGN	Inner HD	238	Small	Small Carcass	singed	Fatality Search		6 Yes	X		X		
2017_283_ISEGS	UNID	Inner HD	246	Small	Feather Spot	unknown	Fatality Search		6 Yes	X		X		
2017_284_ISEGS	RUHU	Power Block	50	Small	Small Carcass	singed	Fatality Search		7 Yes	X	X			
2017_285_ISEGS	HEWA	Outside Search - TOWER	0	Small	Small Carcass	singed	Incidental	NA	No					Outside Standard Search Area
2017_286_ISEGS	BHCO	Outside Search - Solor Concentration Tower Level 6	0	Small	Small Carcass	singed	Incidental	NA	No					Outside Standard Search Area
2017_287_ISEGS	CHSP	Inner HD	204	Small	Small Carcass	unknown	Incidental		6 Yes	X		X		

USFWS #	Species Code	Location	Distance from Tower (m)	Bird Size	Model Size	Cause of Death	How Found	Time Since Last Survey (days)	Used in Estimator	Tower Area	Power Block	Inner HD	Heliostat Area	Estimator Notes
2017_288_ISEGS	YWAR	ACC	41	Small	Small Carcass	singed	Fatality Search	7	Yes	X	X			
2017_289_ISEGS	OCWA	Power Block	107	Small	Small Carcass	singed	Incidental	1(1)	Yes	X	X			
2017_290_ISEGS	BEWR	Inner HD	232	Small	Feather Spot	singed	Fatality Search	7	Yes	X		X		
2017_291_ISEGS	UNSW	Power Block	25	Small	Feather Spot	singed	Fatality Search	7	No	X	X			Older than Search Interval
2017_292_ISEGS	UNID	Inner HD	229	Small	Feather Spot	unknown	Fatality Search	7	Yes	X		X		
2017_293_ISEGS	WTSW	Power Block	88	Small	Feather Spot	singed	Fatality Search	7	Yes	X	X			
2017_294_ISEGS	UNID	Power Block	89	Small	Feather Spot	singed	Fatality Search	7	No	X	X			Older than Search Interval
2017_295_ISEGS	UNID	Inner HD	238	Small	Feather Spot	unknown	Fatality Search	7	Yes	X		X		
2017_296_ISEGS	YRWA	Inner HD	178	Small	Feather Spot	singed	Fatality Search	7	Yes	X		X		
2017_297_ISEGS	UNWA	Inner HD	178	Small	Feather Spot	unknown	Fatality Search	7	Yes	X		X		
2017_298_ISEGS	MOD0	Inner HD	206	Large	Feather Spot	collision	Fatality Search	7	Yes	X		X		
2017_299_ISEGS	UNWA	Power Block	20	Small	Feather Spot	singed	Fatality Search	7	Yes	X	X			
2017_300_ISEGS	EAGR	Inner HD	129	Large	Large Carcass	unknown	Fatality Search	7	Yes	X		X		
2017_301_ISEGS	HOFI	Power Block	78	Small	Feather Spot	singed	Fatality Search	7	No	X	X			Older than Search Interval
2017_302_ISEGS	YWAR	Power Block	72	Small	Feather Spot	singed	Fatality Search	7	Yes	X	X			
2017_303_ISEGS	UNSP	Inner HD	186	Small	Feather Spot	unknown	Fatality Search	7	Yes	X		X		
2017_304_ISEGS	UNID	Inner HD	117	Small	Feather Spot	singed	Fatality Search	7	Yes	X		X		
2017_305_ISEGS	UNID	Power Block	26	Small	Feather Spot	unknown	Fatality Search	7	Yes	X	X			
2017_306_ISEGS	UNID	Power Block	25	Small	Feather Spot	singed	Fatality Search	7	Yes	X	X			
2017_307_ISEGS	UNID	Power Block	48	Small	Feather Spot	unknown	Fatality Search	7	Yes	X	X			
2017_308_ISEGS	UNID	Power Block	44	Small	Feather Spot	singed	Fatality Search	7	No	X	X			Older than Search Interval
2017_309_ISEGS	UNGN	Inner HD	117	Small	Feather Spot	singed	Fatality Search	7	Yes	X		X		
2017_310_ISEGS	YRWA	Power Block	31	Small	Small Carcass	singed	Incidental	1(1)	Yes	X	X			

USFWS #	Species Code	Location	Distance from Tower (m)	Bird Size	Model Size	Cause of Death	How Found	Time Since Last Survey (days)	Used in Estimator	Tower Area	Power Block	Inner HD	Heliostat Area	Estimator Notes
2017_311_ISEGS	TOWA	Power Block	29	Small	Small Carcass	singed	Incidental	1(1)	Yes	X	X			
2017_312_ISEGS	BTYW	ACC	47	Small	Small Carcass	singed	Fatality Search		7 Yes	X	X			
2017_313_ISEGS	UNHU	ACC	63	Small	Small Carcass	singed	Fatality Search		7 Yes	X	X			
2017_314_ISEGS	YWAR	Inner HD	231	Small	Feather Spot	singed	Fatality Search		7 Yes	X		X		
2017_315_ISEGS	WCSP	Inner HD	229	Small	Feather Spot	unknown	Fatality Search		7 Yes	X		X		
2017_316_ISEGS	YWAR	Power Block	59	Small	Small Carcass	singed	Fatality Search		7 Yes	X	X			
2017_317_ISEGS	WCSP	Inner HD	142	Small	Feather Spot	unknown	Fatality Search		7 No	X		X		Older than Search Interval
2017_318_ISEGS	UNID	Inner HD	127	Small	Feather Spot	singed	Fatality Search		7 No	X		X		Older than Search Interval
2017_319_ISEGS	UNSP	Power Block	37	Small	Small Carcass	singed	Fatality Search		7 Yes	X	X			
2017_320_ISEGS	HOWR	Inner HD	229	Small	Feather Spot	singed	Fatality Search		7 Yes	X		X		
2017_321_ISEGS	UNID	Inner HD	207	Small	Feather Spot	unknown	Fatality Search		7 Yes	X		X		
2017_322_ISEGS	LEGO	Power Block	78	Small	Small Carcass	unknown	Fatality Search		7 Yes	X	X			
2017_323_ISEGS	CHSP	Inner HD	218	Small	Feather Spot	unknown	Fatality Search		7 Yes	X		X		
2017_324_ISEGS	UNID	Inner HD	222	Small	Feather Spot	singed	Fatality Search		7 Yes	X		X		
2017_325_ISEGS	YRWA	Inner HD	208	Small	Feather Spot	singed	Fatality Search		7 Yes	X		X		
2017_326_ISEGS	BHCO	Outside Search - Tower Level 17	0	Small	Small Carcass	singed	Incidental	NA	No					Outside Standard Search Area
2017_327_ISEGS	YRWA	Power Block	123	Small	Small Carcass	singed	Incidental	1(1)	Yes	X	X			
2017_328_ISEGS	YRWA	Power Block	27	Small	Small Carcass	singed	Incidental	1(1)	No	X	X			Older than Search Interval
2017_329_ISEGS	WCSP	ACC	39	Small	Small Carcass	singed	Fatality Search		8 Yes	X	X			
2017_330_ISEGS	HOFI	ACC	51	Small	Small Carcass	singed	Fatality Search		7 Yes	X	X			
2017_331_ISEGS	YRWA	ACC	49	Small	Small Carcass	singed	Fatality Search		8 Yes	X	X			
2017_332_ISEGS	BTYW	ACC	64	Small	Small Carcass	singed	Fatality Search		7 Yes	X	X			
2017_333_ISEGS	YRWA	ACC	52	Small	Small Carcass	singed	Fatality Search		7 Yes	X	X			

USFWS #	Species Code	Location	Distance from Tower (m)	Bird Size	Model Size	Cause of Death	How Found	Time Since Last Survey (days)	Used in Estimator	Tower Area	Power Block	Inner HD	Heliostat Area	Estimator Notes
2017_334_ISEGS	YRWA	ACC	61	Small	Small Carcass	singed	Fatality Search	7	Yes	X	X			
2017_335_ISEGS	UNID	Power Block	52	Small	Feather Spot	singed	Fatality Search	8	Yes	X	X			
2017_336_ISEGS	UNID	Power Block	32	Small	Feather Spot	singed	Fatality Search	8	Yes	X	X			
2017_337_ISEGS	UNID	Power Block	16	Small	Feather Spot	singed	Fatality Search	7	Yes	X	X			
2017_338_ISEGS	UNSW	Power Block	4	Small	Feather Spot	singed	Fatality Search	7	No	X	X			Older than Search Interval
2017_339_ISEGS	YRWA	Power Block	26	Small	Small Carcass	singed	Fatality Search	8	Yes	X	X			
2017_340_ISEGS	UNSW	Power Block	28	Small	Feather Spot	unknown	Fatality Search	7	Yes	X	X			
2017_341_ISEGS	UNID	Power Block	112	Small	Feather Spot	unknown	Fatality Search	7	Yes	X	X			
2017_342_ISEGS	YRWA	Inner HD	198	Small	Feather Spot	singed	Fatality Search	8	Yes	X		X		
2017_343_ISEGS	RBGR	Inner HD	115	Small	Feather Spot	singed	Fatality Search	8	Yes	X		X		
2017_344_ISEGS	NOMO	Inner HD	172	Small	Feather Spot	singed	Fatality Search	8	No	X		X		Older than Search Interval
2017_345_ISEGS	CHSP	Inner HD	184	Small	Small Carcass	collision	Fatality Search	8	Yes	X		X		
2017_346_ISEGS	COHA	Outside Search - UNIT 1 FENCE	1136	Large	Large Carcass	unknown	Incidental	NA	No					Outside Standard Search Area
2017_347_ISEGS	YRWA	ACC	67	Small	Small Carcass	singed	Fatality Search	5	Yes	X	X			
2017_348_ISEGS	YRWA	ACC	68	Small	Small Carcass	singed	Fatality Search	5	Yes	X	X			
2017_349_ISEGS	VGSW	ACC	46	Small	Small Carcass	singed	Fatality Search	7	Yes	X	X			
2017_350_ISEGS	UNID	Power Block	78	Small	Feather Spot	unknown	Fatality Search	5	No	X	X			Older than Search Interval
2017_351_ISEGS	UNID	Power Block	41	Small	Small Carcass	singed	Fatality Search	5	Yes	X	X			
2017_352_ISEGS	UNID	Power Block	24	Small	Feather Spot	singed	Fatality Search	5	Yes	X	X			
2017_353_ISEGS	UNID	Power Block	8	Small	Feather Spot	singed	Fatality Search	5	Yes	X	X			
2017_354_ISEGS	RCKI	Power Block	18	Small	Small Carcass	singed	Fatality Search	5	Yes	X	X			
2017_355_ISEGS	UNID	Power Block	28	Small	Feather Spot	singed	Fatality Search	7	Yes	X	X			
2017_356_ISEGS	UNID	Power Block	97	Small	Feather Spot	singed	Fatality Search	5	Yes	X	X			

USFWS #	Species Code	Location	Distance from Tower (m)	Bird Size	Model Size	Cause of Death	How Found	Time Since Last Survey (days)	Used in Estimator	Tower Area	Power Block	Inner HD	Heliostat Area	Estimator Notes
2017_357_ISEGS	YRWA	Power Block	47	Small	Small Carcass	singed	Fatality Search	7	Yes	X	X			
2017_358_ISEGS	HOWR	Power Block	31	Small	Small Carcass	collision	Fatality Search	7	Yes	X	X			
2017_359_ISEGS	UNID	Inner HD	193	Small	Feather Spot	singed	Fatality Search	8	Yes	X		X		
2017_360_ISEGS	COHA	Inner HD	222	Large	Large Carcass	collision	Fatality Search	8	Yes	X		X		
2017_361_ISEGS	VGSW	ACC	53	Small	Small Carcass	singed	Fatality Search	8	Yes	X	X			
2017_362_ISEGS	VGSW	ACC	42	Small	Small Carcass	singed	Fatality Search	8	Yes	X	X			
2017_363_ISEGS	HOFI	ACC	34	Small	Small Carcass	singed	Fatality Search	8	Yes	X	X			
2017_364_ISEGS	UNID	Inner HD	235	Small	Feather Spot	unknown	Fatality Search	7	Yes	X		X		
2017_365_ISEGS	NOMO	Inner HD	195	Small	Feather Spot	unknown	Fatality Search	7	No	X		X		Older than Search Interval
2017_366_ISEGS	WETA	Inner HD	146	Small	Feather Spot	unknown	Fatality Search	7	Yes	X		X		
2017_367_ISEGS	UNWA	Power Block	11	Small	Feather Spot	singed	Fatality Search	8	Yes	X	X			
2017_368_ISEGS	UNSW	Power Block	5	Small	Feather Spot	singed	Fatality Search	8	No	X	X			Older than Search Interval
2017_369_ISEGS	SWTH	Inner HD	182	Small	Feather Spot	unknown	Fatality Search	7	Yes	X		X		
2017_370_ISEGS	UNBB	Power Block	135	Small	Feather Spot	unknown	Fatality Search	8	Yes	X	X			
2017_371_ISEGS	SAVS	Inner HD	248	Small	Feather Spot	collision	Fatality Search	7	Yes	X		X		
2017_372_ISEGS	UNSP	Inner HD	182	Small	Feather Spot	unknown	Fatality Search	7	Yes	X		X		
2017_373_ISEGS	YRWA	ACC	33	Small	Small Carcass	singed	Fatality Search	7	Yes	X	X			
2017_374_ISEGS	CHSP	ACC	50	Small	Small Carcass	singed	Fatality Search	7	Yes	X	X			
2017_375_ISEGS	RBNU	ACC	55	Small	Small Carcass	other (entrapment)	Fatality Search	7	Yes	X	X			
2017_376_ISEGS	UNSP	Inner HD	197	Small	Feather Spot	singed	Fatality Search	6	Yes	X		X		
2017_377_ISEGS	UNWO	Power Block	81	Small	Feather Spot	singed	Fatality Search	7	Yes	X	X			
2017_378_ISEGS	UNID	Inner HD	166	Small	Feather Spot	singed	Fatality Search	6	Yes	X		X		
2017_379_ISEGS	UNID	Power Block	27	Small	Feather Spot	singed	Fatality Search	7	Yes	X	X			

USFWS #	Species Code	Location	Distance from Tower (m)	Bird Size	Model Size	Cause of Death	How Found	Time Since Last Survey (days)	Used in Estimator	Tower Area	Power Block	Inner HD	Heliostat Area	Estimator Notes
2017_380_ISEGS	YRWA	Power Block	56	Small	Feather Spot	singed	Fatality Search	7	Yes	X	X			
2017_381_ISEGS	UNID	Power Block	55	Small	Feather Spot	unknown	Fatality Search	7	Yes	X	X			
2017_382_ISEGS	YRWA	ACC	64	Small	Small Carcass	singed	Fatality Search	6	Yes	X	X			
2017_383_ISEGS	PISI	Power Block	73	Small	Small Carcass	singed	Fatality Search	6	No	X	X			Older than Search Interval
2017_384_ISEGS	UNID	Power Block	28	Small	Feather Spot	singed	Fatality Search	6	Yes	X	X			
2017_385_ISEGS	UNAC	Inner HD	219	Large	Feather Spot	unknown	Fatality Search	14	Yes	X		X		
2017_386_ISEGS	YRWA	Power Block	29	Small	Small Carcass	singed	Fatality Search	6	Yes	X	X			
2017_387_ISEGS	UNID	Power Block	28	Small	Feather Spot	singed	Fatality Search	6	Yes	X	X			
2017_388_ISEGS	YRWA	Power Block	23	Small	Small Carcass	singed	Fatality Search	6	Yes	X	X			
2017_389_ISEGS	UNID	Power Block	50	Small	Feather Spot	singed	Fatality Search	6	Yes	X	X			
2017_390_ISEGS	VGSW	Inner HD	202	Small	Feather Spot	singed	Fatality Search	6	Yes	X		X		
2017_391_ISEGS	VESP	Inner HD	110	Small	Feather Spot	unknown	Fatality Search	6	Yes	X		X		
2017_392_ISEGS	YWAR	Inner HD	111	Small	Feather Spot	singed	Fatality Search	6	No	X		X		Older than Search Interval
2017_393_ISEGS	WIWA	ACC	46	Small	Small Carcass	singed	Fatality Search	6	Yes	X	X			
2017_394_ISEGS	CHSP	ACC	46	Small	Small Carcass	singed	Fatality Search	6	Yes	X	X			
2017_395_ISEGS	UNFI	Inner HD	107	Small	Feather Spot	singed	Fatality Search	6	Yes	X		X		
2017_396_ISEGS	BHGR	Inner HD	162	Small	Feather Spot	singed	Fatality Search	6	Yes	X		X		
2017_397_ISEGS	WIWA	ACC	51	Small	Small Carcass	singed	Fatality Search	6	Yes	X	X			
2017_398_ISEGS	UNID	Inner HD	146	Small	Feather Spot	singed	Fatality Search	6	Yes	X		X		
2017_399_ISEGS	OCWA	Inner HD	150	Small	Feather Spot	singed	Fatality Search	6	Yes	X		X		
2017_400_ISEGS	NOMO	Inner HD	159	Small	Feather Spot	singed	Fatality Search	6	No	X		X		Older than Search Interval
2017_401_ISEGS	UNWO	Power Block	21	Small	Feather Spot	singed	Fatality Search	6	Yes	X	X			
2017_402_ISEGS	UNID	Inner HD	140	Small	Feather Spot	singed	Fatality Search	6	Yes	X		X		

USFWS #	Species Code	Location	Distance from Tower (m)	Bird Size	Model Size	Cause of Death	How Found	Time Since Last Survey (days)	Used in Estimator	Tower Area	Power Block	Inner HD	Heliostat Area	Estimator Notes
2017_403_ISEGS	BTSP	Power Block	25	Small	Feather Spot	singed	Fatality Search	6	Yes	X	X			
2017_404_ISEGS	UNID	Inner HD	185	Small	Small Carcass	singed	Fatality Search	6	Yes	X		X		
2017_405_ISEGS	UNID	Power Block	32	Small	Feather Spot	unknown	Fatality Search	6	Yes	X	X			
2017_406_ISEGS	UNWO	Power Block	90	Small	Feather Spot	singed	Fatality Search	6	Yes	X	X			
2017_407_ISEGS	UNID	Power Block	116	Small	Feather Spot	singed	Fatality Search	6	Yes	X	X			
2017_408_ISEGS	FOSP	Power Block	93	Small	Feather Spot	unknown	Fatality Search	6	Yes	X	X			
2017_409_ISEGS	UNID	Inner HD	176	Small	Feather Spot	unknown	Fatality Search	6	Yes	X		X		
2017_410_ISEGS	YRWA	Power Block	73	Small	Feather Spot	singed	Fatality Search	6	Yes	X	X			
2017_411_ISEGS	SAVS	Inner HD	254	Small	Feather Spot	unknown	Fatality Search	6	Yes	X		X		
2017_412_ISEGS	UNSW	Inner HD	190	Small	Feather Spot	singed	Fatality Search	6	Yes	X		X		
2017_413_ISEGS	UNID	Power Block	25	Small	Feather Spot	singed	Fatality Search	6	Yes	X	X			
2017_414_ISEGS	UNID	Power Block	69	Small	Feather Spot	singed	Fatality Search	6	No	X	X			Older than Search Interval
2017_415_ISEGS	UNSP	Inner HD	207	Small	Feather Spot	unknown	Fatality Search	6	Yes	X		X		
2017_416_ISEGS	UNID	Inner HD	217	Small	Feather Spot	singed	Fatality Search	6	Yes	X		X		
2017_417_ISEGS	UNDU	Power Block	88	Large	Feather Spot	unknown	Fatality Search	6	Yes	X	X			
2017_418_ISEGS	HOFI	Power Block	12	Small	Small Carcass	singed	Incidental	1(1)	Yes	X	X			
2017_419_ISEGS	YRWA	Inner HD	150	Small	Feather Spot	singed	Fatality Search	6	Yes	X		X		
2017_420_ISEGS	UNID	Inner HD	162	Small	Feather Spot	singed	Fatality Search	6	Yes	X		X		
2017_421_ISEGS	UNID	Inner HD	162	Small	Feather Spot	singed	Fatality Search	6	Yes	X		X		
2017_422_ISEGS	UNID	Inner HD	166	Small	Feather Spot	singed	Fatality Search	7	Yes	X		X		
2017_423_ISEGS	WEME	Inner HD	171	Small	Feather Spot	unknown	Fatality Search	7	Yes	X		X		
2017_424_ISEGS	MODO	Inner HD	265	Large	Feather Spot	unknown	Fatality Search	7	Yes	X		X		
2017_425_ISEGS	PISI	Inner HD	265	Small	Feather Spot	singed	Fatality Search	7	Yes	X		X		

USFWS #	Species Code	Location	Distance from Tower (m)	Bird Size	Model Size	Cause of Death	How Found	Time Since Last Survey (days)	Used in Estimator	Tower Area	Power Block	Inner HD	Heliostat Area	Estimator Notes
2017_426_ISEGS	YRWA	Power Block	30	Small	Small Carcass	singed	Incidental	1(1)	No	X	X			Older than Search Interval
2017_427_ISEGS	UNSS	ACC	41	Small	Small Carcass	singed	Fatality Search		9 Yes	X	X			
2017_428_ISEGS	YRWA	ACC	70	Small	Small Carcass	singed	Fatality Search		9 Yes	X	X			
2017_429_ISEGS	UNID	Power Block	27	Small	Feather Spot	singed	Fatality Search		9 Yes	X	X			
2017_430_ISEGS	LEGO	Inner HD	249	Small	Feather Spot	singed	Fatality Search		12 Yes	X		X		
2017_431_ISEGS	VGSW	Inner HD	199	Small	Feather Spot	singed	Fatality Search		12 Yes	X		X		
2017_432_ISEGS	UNID	Inner HD	224	Small	Feather Spot	singed	Fatality Search		12 Yes	X		X		
2017_433_ISEGS	UNID	Inner HD	201	Small	Feather Spot	singed	Fatality Search		12 Yes	X		X		
2017_434_ISEGS	BEWR	Inner HD	183	Small	Feather Spot	unknown	Fatality Search		12 Yes	X		X		
2017_435_ISEGS	UNID	Inner HD	135	Small	Feather Spot	singed	Fatality Search		12 Yes	X		X		
2017_436_ISEGS	YRWA	Inner HD	92	Small	Feather Spot	singed	Fatality Search		12 Yes	X		X		
2017_437_ISEGS	UNID	Inner HD	175	Small	Feather Spot	unknown	Fatality Search		12 No	X		X		Older than Search Interval
2017_438_ISEGS	YRWA	Inner HD	147	Small	Feather Spot	singed	Fatality Search		12 Yes	X		X		
2017_439_ISEGS	UNKI	Inner HD	207	Small	Feather Spot	singed	Fatality Search		12 Yes	X		X		
2017_440_ISEGS	AMPI	Inner HD	295	Small	Feather Spot	singed	Fatality Search		12 Yes	X		X		
2017_441_ISEGS	VGSW	Inner HD	223	Small	Feather Spot	singed	Fatality Search		13 Yes	X		X		
2017_442_ISEGS	UNID	Inner HD	140	Small	Small Carcass	singed	Fatality Search		13 Yes	X		X		
2017_443_ISEGS	YRWA	Inner HD	147	Small	Feather Spot	singed	Fatality Search		12 Yes	X		X		
2017_444_ISEGS	UNID	Inner HD	207	Small	Feather Spot	singed	Fatality Search		12 Yes	X		X		
2017_445_ISEGS	UNWA	Power Block	0	Small	Small Carcass	singed	Incidental	1(1)	No	X	X			Older than Search Interval
2017_446_ISEGS	VASW	Power Block	0	Small	Small Carcass	singed	Incidental	1(1)	No	X	X			Older than Search Interval
2017_447_ISEGS	NRWS	Power Block	0	Small	Small Carcass	singed	Incidental	1(1)	No	X	X			Older than Search Interval
2017_448_ISEGS	YRWA	Power Block	0	Small	Small Carcass	singed	Incidental	1(1)	No	X	X			Older than Search Interval

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2017_449_ISEGS	YRWA	ACC	77	Small	Small Carcass	singed	Fatality Search	14	Yes	X	X			
2017_450_ISEGS	UNID	Power Block	6	Small	Small Carcass	singed	Fatality Search	14	Yes	X	X			
2017_451_ISEGS	UNWA	Power Block	98	Small	Feather Spot	singed	Fatality Search	14	Yes	X	X			
2017_452_ISEGS	AMKE	Power Block	95	Large	Feather Spot	singed	Fatality Search	14	No	X	X			Older than Search Interval
2017_453_ISEGS	HOSP	ACC	67	Small	Small Carcass	singed	Fatality Search	20	Yes	X	X			
2017_454_ISEGS	LEGO	ACC	67	Small	Small Carcass	singed	Fatality Search	20	Yes	X	X			
2017_455_ISEGS	UNID	Power Block	107	Small	Feather Spot	singed	Fatality Search	20	Yes	X	X			
2017_456_ISEGS	RCKI	ACC	64	Small	Small Carcass	singed	Fatality Search	20	Yes	X	X			
2017_457_ISEGS	HOSP	Power Block	31	Small	Small Carcass	singed	Fatality Search	20	Yes	X	X			
2017_458_ISEGS	UNID	Power Block	31	Small	Feather Spot	singed	Fatality Search	20	Yes	X	X			
2017_459_ISEGS	UNWO	Inner HD	232	Small	Feather Spot	singed	Fatality Search	21	Yes	X		X		
2017_460_ISEGS	YRWA	Inner HD	194	Small	Feather Spot	singed	Fatality Search	21	Yes	X		X		
2017_461_ISEGS	BGGN	Inner HD	193	Small	Feather Spot	unknown	Fatality Search	21	Yes	X		X		
2017_462_ISEGS	MOD0	Inner HD	204	Large	Feather Spot	unknown	Fatality Search	21	Yes	X		X		
2017_463_ISEGS	RCKI	Power Block	51	Small	Feather Spot	singed	Fatality Search	20	Yes	X	X			
2017_464_ISEGS	UNDU	Inner HD	216	Large	Large Carcass	unknown	Fatality Search	20	Yes	X		X		
2017_465_ISEGS	UNID	Inner HD	222	Small	Feather Spot	unknown	Fatality Search	20	Yes	X		X		
2017_466_ISEGS	UNID	Inner HD	125	Small	Feather Spot	singed	Fatality Search	20	Yes	X		X		
2017_467_ISEGS	UNID	Inner HD	102	Small	Feather Spot	singed	Fatality Search	20	Yes	X		X		
2017_468_ISEGS	EUST	Inner HD	112	Small	Feather Spot	singed	Fatality Search	20	Yes	X		X		
2017_469_ISEGS	AMPI	Inner HD	161	Small	Small Carcass	singed	Fatality Search	20	Yes	X		X		
2017_470_ISEGS	HETH	Inner HD	175	Small	Feather Spot	unknown	Fatality Search	20	Yes	X		X		
2017_471_ISEGS	UNID	Inner HD	226	Small	Feather Spot	singed	Fatality Search	20	No	X		X		Older than Search Interval

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2017_472_ISEGS	UNID	Inner HD	195	Small	Feather Spot	unknown	Fatality Search	20	Yes	X		X		
2017_473_ISEGS	EUST	Inner HD	165	Small	Feather Spot	singed	Fatality Search	20	Yes	X		X		
2017_474_ISEGS	UNID	Inner HD	256	Small	Feather Spot	unknown	Fatality Search	20	Yes	X		X		
2017_475_ISEGS	AMPI	Inner HD	190	Small	Feather Spot	unknown	Fatality Search	20	Yes	X		X		
2017_476_ISEGS	UNID	Power Block	0	Small	Feather Spot	singed	Fatality Search	21	Yes	X	X			
2017_477_ISEGS	COHU	Power Block	NA	Small	Feather Spot	singed	Fatality Search	21	Yes	X	X			
2017_478_ISEGS	WEME	Inner HD	256	Small	Feather Spot	unknown	Fatality Search	22	Yes	X		X		
2017_479_ISEGS	UNID	Inner HD	193	Small	Feather Spot	unknown	Fatality Search	22	Yes	X		X		
2017_480_ISEGS	UNID	Inner HD	164	Small	Feather Spot	singed	Fatality Search	22	Yes	X		X		
2017_481_ISEGS	YRWA	Inner HD	155	Small	Feather Spot	unknown	Fatality Search	22	Yes	X		X		
2017_482_ISEGS	UNID	Power Block	100	Small	Feather Spot	unknown	Incidental Search	1(1)	No	X	X			Older than Search Interval
2017_483_ISEGS	UNGR	ACC	202	Large	Large Carcass	other (entrapment)	Fatality Search	21	Yes	X	X			
2017_484_ISEGS	CAFI	Inner HD	238	Small	Small Carcass	unknown	Fatality Search	21	Yes	X		X		
2017_485_ISEGS	AMPI	Inner HD	242	Small	Feather Spot	unknown	Fatality Search	21	Yes	X		X		
2017_486_ISEGS	WEME	Inner HD	266	Small	Feather Spot	unknown	Fatality Search	21	Yes	X		X		
2017_487_ISEGS	UNID	Power Block	32	Small	Feather Spot	singed	Fatality Search	22	Yes	X	X			
2017_488_ISEGS	YRWA	Power Block	32	Small	Feather Spot	singed	Fatality Search	19	Yes	X	X			