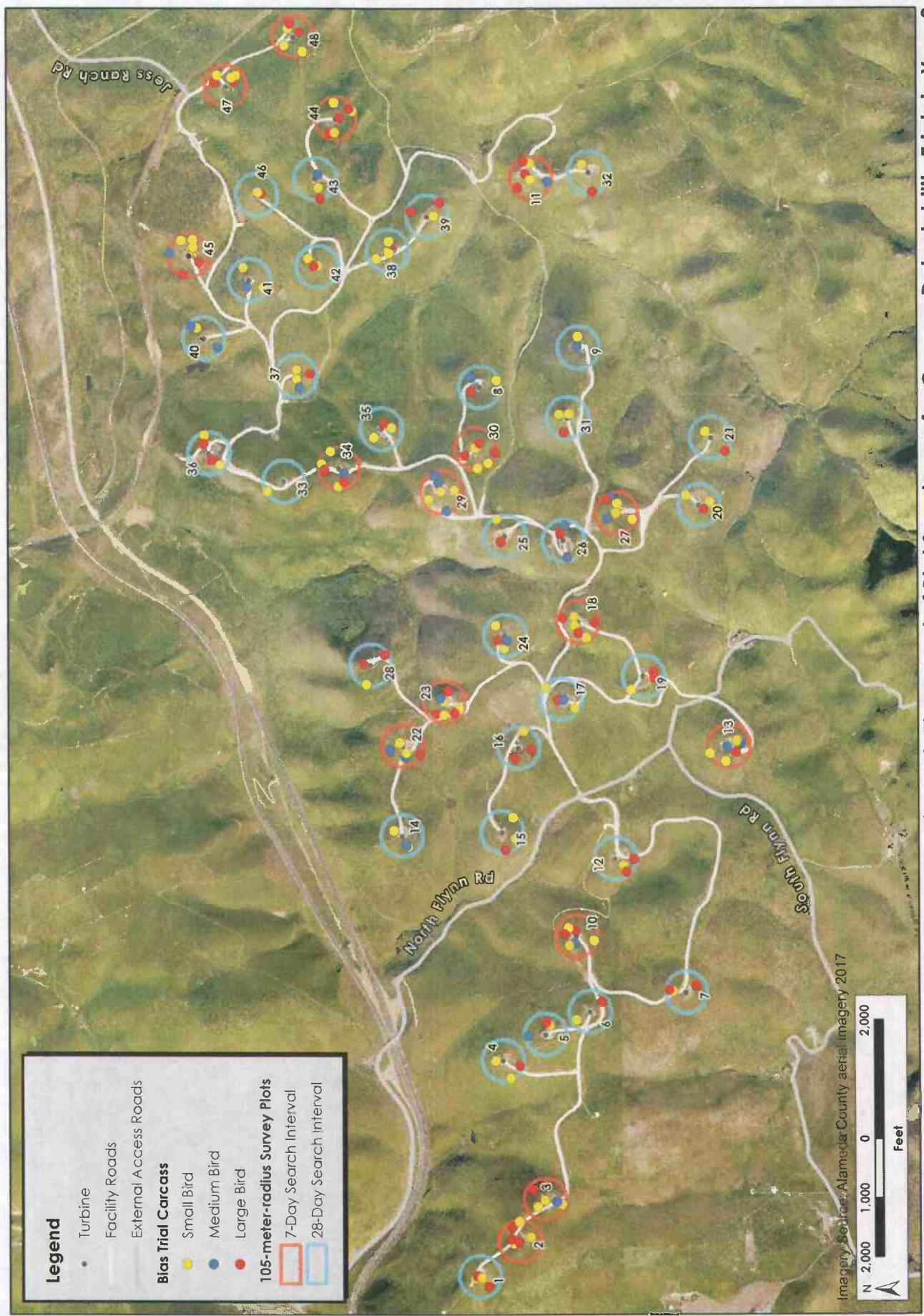


**Figure 4. Placement of Bat Specimens for Carcass Detectability Trials in Year 2**  
Golden Hills Postconstruction Fatality Monitoring: Year 2 (3926-01)  
March ~ 2018

**H. T. HARVEY & ASSOCIATES**

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**Figure 4. Placement of Bird Specimens for Carcass Detectability Trials in Year 2**  
Golden Hills Postconstruction Fatality Monitoring Year 2 (33926-01)  
December 2018

**H. T. HARVEY & ASSOCIATES**

Ecological Consultants

The detection-dog teams found 22 of 36 bats placed on the 7-day plots in Year 2, yielding a non-modeled, annual carcass detectability estimate of 61% (Table 5). In contrast, the human surveyors found none of the 31 bats placed on the 28-day plots during the year, which precluded developing a detectability estimate for bats on 28-day plots surveyed by humans. Although based on modest sample sizes, the non-modeled probability of dogs detecting bats on 7-day plots was highest during fall (80%) and lower (50–60%) during other quarterly seasons.

The duration between placement and discovery of bat carcasses by the detection dogs ranged from 1–40 days, with a median discovery age of 4 days and an average discovery age of 9 days. Fifteen of the 22 discoveries were made within 1 week of placement, three specimens were discovered during the second week after placement, three specimens were not discovered until 3–5 weeks later, and one specimen was not discovered until 40 days later. Accordingly, based only on detected carcasses, the estimated bleed-through rate for detection dogs surveying for bats at 7-day intervals was 32%.

The detection-dog teams ultimately found 27 of 45 (60%) small birds, 16 of 19 (84%) medium birds, and 32 of 33 (97%) large birds placed as trial carcasses on the 7-day plots in Year 2 (Table 6). The only large bird the dogs did not find evidence of was one of two mallards placed on the 7-day plots, which was probably carried off intact by a mammalian scavenger. On a seasonal basis, the probability of dogs detecting small birds on 7-day plots declined progressively from a high of 70% in fall to a low of 54% in summer (Table 6). Detection of medium birds followed the opposite pattern, increasing progressively from a low of 75% in fall to a high of 100% in summer, and the probability of detecting large birds also was slightly lower in fall (83%; one carcass missed) than in other seasons (100%).

The duration between placement and discovery of small bird carcasses by the detection dogs ranged from <1–63 days, with a median discovery age of 6 days. Based only on detected carcasses, the estimated bleed-through rate for detection dogs surveying for small birds at 7-day intervals was 41%. The duration between placement and discovery of medium bird carcasses by the detection dogs ranged from <1–15 days, and for large birds ranged from <1–36 days. For both of the latter groups, the median discovery age was 4 days and the estimated bleed-through rate was 6%.

The human surveyors ultimately found 2 of 48 (4%) small birds, 6 of 13 (46%) medium birds, and 32 of 36 (89%) large birds placed as trial carcasses on the 28-day plots in Year 2 (Table 6). On a seasonal basis, the estimated probability of human surveyors detecting small birds on 28-day plots was 7–11% in fall and winter and zero in spring and summer. The probability of human surveyors detecting large birds also declined from fall (100%) through spring (86%), and then dropped a bit more in summer (80%). In comparison, no seasonal pattern was evident for medium birds; however, small sample sizes warrant caution in considering those data.

The duration between placement and discovery of the two small bird carcasses by the human surveyors was 3 and 5 days, yielding a median discovery age of 4 days and no confirmed bleed-through. The duration between placement and discovery of medium bird carcasses by the human surveyors ranged from 1–13 days, with a median discovery age of 6 days and no confirmed bleed-through. The duration between placement and discovery of large bird carcasses by the human surveyors ranged from <1–42 days, with a median discovery age of 6 days and an estimated bleed-through rate of 3% ( $n = 1$  carcass).

### 3.4.1 Models to Predict Carcass Detectability Based on Average Bird Mass

For both the 7-day surveys conducted by detection-dog teams and the 28-day surveys conducted by human surveyors in Year 2, the best GLMs indicated significant relationships between the probability of detection and the average mass of bird species placed as trial carcasses (Table 7). Neither season (two- or four-season variants) nor substrate significantly improved the fit of either model as categorical covariates. Figures 6 and 7 depict the modeled relationships.

**Table 7. Coefficients and Significance Tests for Logistic GLMs Relating the Probability of Detection to the Average Mass of Bird Species Placed as Trial Carcasses on 7-day and 28-day Survey Plots in Year 2**

Parameters	Estimate	Standard Error	z	P
7-day Detection-Dog Surveys <sup>1</sup>				
Intercept	-0.09202	0.38314	-0.240	0.810
Average Mass (g)	0.01103	0.00499	2.211	0.027
28-day Human Surveys <sup>2</sup>				
Intercept	-2.78988	0.52979	-5.266	<0.001
Average Mass (g)	0.00607	0.00122	4.956	<0.001

<sup>1</sup> Model AIC = 75.18, Nagelkirke R<sup>2</sup> = 0.41. Null model AIC = 102.86.

<sup>2</sup> Model AIC = 59.27, Nagelkirke R<sup>2</sup> = 0.73. Null model AIC = 132.41.

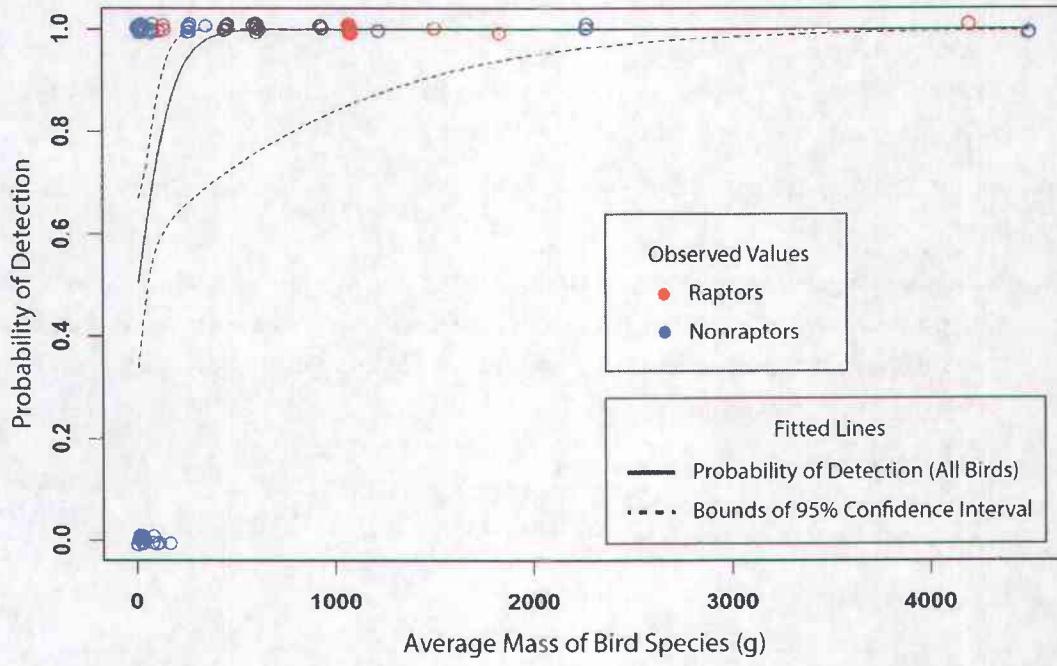
In developing the 7-day dog model, we eliminated one mallard from the dataset that the dogs never found, and in developing the 28-day human model, we eliminated one Canada goose from the dataset that the human surveyors never found. Removing these extreme outliers was necessary to produce robust statistical outcomes. Over the 2-year study, there were only five trial birds with an average species-specific mass >200 g for which the detection dogs never found any evidence of their having been placed on a relevant 7-day or 28-day plot. These specimens comprised one red-tailed hawk, one common raven, one pigeon, one mallard, and one Canada goose, all of which were clearly carried away intact by a scavenger (e.g., a coyote) before the detection dogs had a chance to discover the carcasses. The mallard was the only such specimen placed on a 7-day plot. During Year 2 on the 28-day plots, the human surveyors failed to find any evidence of only two placed birds with an average species-specific mass >700 g (one red-tailed hawk and the aforementioned Canada goose).

We used the above model results to predict  $D$  for each fatality according to the following formulas:

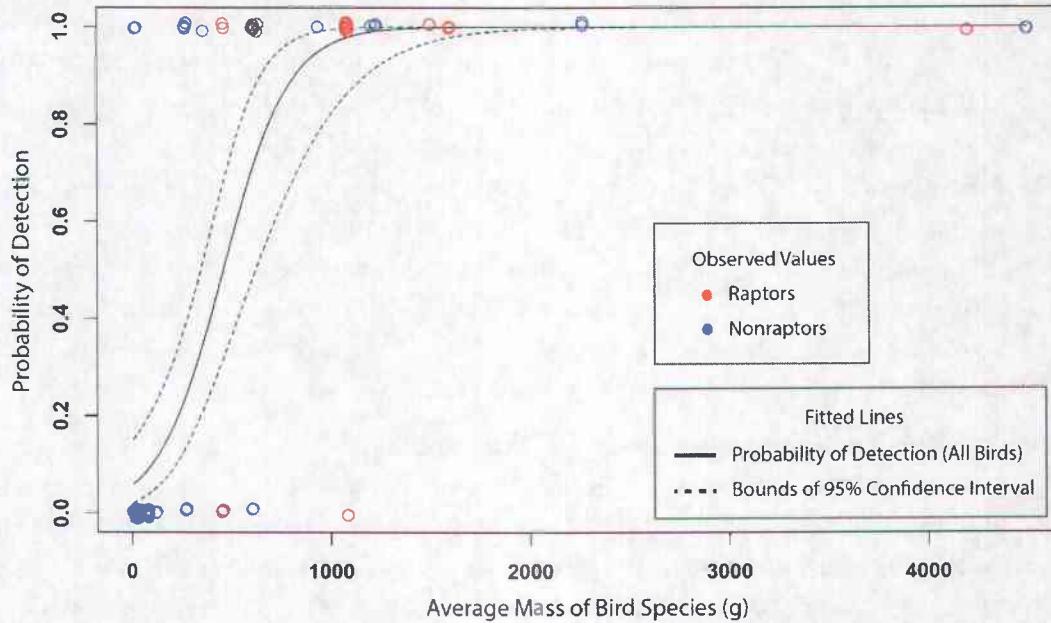
$$\text{7-day: } D = \text{EXP}(0.01103 * \text{Average Mass} - 0.09202) / (1 + \text{EXP}(0.01103 * \text{Average Mass} - 0.09202))$$

$$\text{28-day: } D = \text{EXP}(0.00607 * \text{Average Mass} - 2.78988) / (1 + \text{EXP}(0.00607 * \text{Average Mass} - 2.78988))$$

Appendix E provides predicted probabilities of detection for representative species based on application of these two formulas.



**Figure 6. Modeled Relationship (Binomial Logistic GLM) Between the Probability of Detection by Scent-Detection Dogs on 7-Day Survey Plots in Year 2 and the Average Mass of Relevant Bird Species**



**Figure 7. Modeled Relationship (Binomial Logistic GLM) Between the Probability of Detection by Human Surveyors on 28-Day Survey Plots in Year 2 and the Average Mass of Relevant Bird Species**

Next, we used Equation 1 (see Section 2.4) to develop an adjusted “count” for each documented fatality by plugging in a relevant value for  $D$ , predicted based on the appropriate equation above, and a value for  $d$ , as outlined in Section 2.4. Then we summed the fatality-specific adjusted counts as needed to produce adjusted fatality estimates for various taxa, individual turbines, and survey periods.

Parameterizing the model equations needed to estimate SEs to associate with the adjusted fatality estimates for birds resulted in the coefficient values displayed in Table 8.

**Table 8. Nonlinear Regression Coefficients Optimized to Form Models for Predicting the Standard Error of Adjusted Per Turbine Fatality Rate Estimates Based on the Average Mass of Relevant Species and the Standard Error of Unadjusted Per Turbine Fatality Rates for Those Species**

Survey Type	Coefficients <sup>1</sup>			$R^2$	Root Mean Square Error
	a	b	c		
7-day Dog	0.0167	-1.106E+09	0.5604	0.877	0.0006
28-day Human	0.0217	-8.422E+7	1.9022	0.338	0.0136

<sup>1</sup> Model coefficients fitted to equation  $\bar{SE}[P_A] = a + \frac{1}{b \cdot M} + c * SE[P_B]$  for the two survey types.

## 3.5 Fatality Estimates

### 3.5.1 Year 2

Using season-specific, non-modeled estimates of carcass detectability for detection dogs surveying for bats on 7-day plots (80% in fall and 50–60% from winter through spring; Table 5) to produce adjusted fatality estimates increased the unadjusted fatality total of 116 bats to an estimated 167 bat fatalities at the 16 relevant turbines (Table 9). This estimate translated to an average fatality rate of 10.4 bats per turbine, which yielded an extrapolated estimate of total fatalities for the facility of 500 bats (Table 9). For perspective, using instead a single annual estimate of carcass detectability for bats on 7-day plots (61%) resulted in a slightly higher adjusted estimate of 190 total fatalities for the 7-day plots, which translated to a fatality rate of 11.9 bats per turbine and 570 total bat fatalities for the facility. Given common estimated detectability factors for all bats by season, and no substantial species-specific differences in seasonal distribution, the proportional translation to adjusted estimates was similar for the four species detected in Year 2 (Table 9).

Using modeled predictions of carcass detectability for detection dogs surveying for birds of different average masses at 7-day intervals (with the model results indicating that no seasonal adjustments were warranted) increased the unadjusted fatality totals of 111 small birds, 24 medium birds, 16 large birds, and 38 total raptors to adjusted totals of 194 small birds, 30 medium birds, 17 large birds, and 44 total raptors at the 16 relevant turbines (Table 10). Using the modeled estimates of carcass detectability for humans surveying for birds on the 28-day plots (again with no seasonal adjustments warranted) increased the unadjusted fatality totals of 16 small birds, 15 medium birds, 36 large birds, and 48 total raptors to adjusted totals of 223 small birds, 105 medium birds, 38 large birds, and 140 total raptors at the 32 relevant turbines (Table 10).

**Table 9. Adjusted Annual Fatality Estimates for Bats on 7-day Survey Plots and Extrapolated Estimates for the Entire Facility: Year 2**

Species	Fatalities Per Turbine			Fatalities Per MW			Total Fatalities for Facility		
	Number Found	Fatalities Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI
Mexican free-tailed bat	66	5.8	3.7–7.8	3.2	2.1–4.4	92	59–125	277	178–376
Hoary bat	45	4.1	3.1–5.1	2.3	1.7–2.9	66	50–82	197	149–245
Western red bat	2	0.2	0.0–0.4	0.1	0.0–0.2	3	0–7	9	0–21
California myotis	1	0.1	0.1–0.1	0.1	0.1–0.1	2	2–2	6	6–6
Unknown bat	2	0.2	0.0–0.5	0.1	0.0–0.3	4	0–9	11	0–26
All Bats	116	10.4	6.8–14.0	5.8	3.8–7.8	167	109–225	500	326–674

**Table 10. Adjusted Annual Fatality Estimates for Bird Groups on 7-day and 28-day Survey Plots: Year 2**

Survey Type	Group	Number Found	Fatalities Per Turbine			Fatalities Per MW			Total Fatalities For Turbine Group		
			Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	
7-day Dog (16 turbines)	Small birds	111	12.0	7.6–16.4	6.7	4.3–9.2	192	122–262			
	Medium birds	24	1.9	1.1–2.6	1.0	0.6–1.5	30	17–42			
	Large birds	16	1.0	0.3–1.8	0.6	0.1–1.0	17	4–29			
	All nonraptors	112	12.1	9.2–15.1	6.8	5.1–8.5	194	147–242			
	All raptors	38	2.8	1.8–3.7	1.5	1.0–2.1	44	29–59			
	All birds	151	14.9	11.0–18.8	8.3	6.1–10.5	238	176–301			
28-day Human (32 turbines)	Small birds	16	8.0	6.1–10.0	4.5	3.4–5.6	225	163–287			
	Medium birds	15	3.7	2.6–4.9	2.1	1.5–2.7	105	69–141			
	Large birds	36	1.4	0–3.2	0.8	0–1.8	38	0–96			
	All nonraptors	20	8.2	5.8–10.5	4.6	3.3–5.9	228	154–303			
	All raptors	48	5.0	4.8–5.2	2.8	1.4–4.2	140	135–145			
	All birds	68	13.2	10.7–15.6	7.3	4.6–10.1	368	288–448			

If the average fatality rates on 7-day and 28-day turbines were similar, then we would expect the adjusted estimates of fatality totals for the 32 28-day plots to be approximately twice as high as for the 16 7-day plots, and the adjusted estimates of per turbine fatality rates to be similar. The results for large birds as a group conformed to this expectation (16 vs. 36 total fatalities, and 1.0 vs. 1.4 fatalities per turbine), whereas the comparative results for other groups did not (Table 10). The results for small birds suggested a significantly lower average fatality rate across the 28-day plots compared to the 7-day plots, whereas the opposite was true for medium birds and all raptors as a group. The results for medium birds and all raptors were related, in that the high 28-day estimates reflected a substantially higher adjusted fatality total for burrowing owls (classified in the medium bird category) on the 28-day plots (84 owls) compared to the 7-day plots (15 owls) (Table 11). Note, however, that the high 28-day estimates also reflected approximately four times as many actual and estimated golden eagle fatalities on the 28-day plots than on the 7-day plots (Table 11). Unlike for golden eagles, for which the actual and adjusted fatality totals were similar, for burrowing owls the estimated fatality total for the 28-day plots was nearly eight times higher than the documented total. In comparison, the carcass detectability adjustment for burrowing owls on 7-day plots surveyed with dogs was relatively small (83% predicted detectability on 7-day plots versus 13% on 28-day plots) (Appendix E) and, hence, the actual and estimated fatality totals were much more similar (Table 11).

The difference in 7-day versus 28-day adjusted fatality estimates for small birds as a group was reflected in the comparative estimates for three primary species: horned lark, western meadowlark, and white-throated swift. For all three species, the estimated 7-day and 28-day fatality totals were nearly identical and the estimated per turbine fatality rates were notably higher for the 7-day plots than for the 28-day plots (Table 11).

The method used to generate 95% CIs for the various adjusted fatality estimates appeared to produce reasonable results, with two prominent exceptions. Despite requiring minimal adjustments for carcass detectability and DWP for both the 7-day dog and 28-day human surveys, and despite the actual and adjusted fatality estimates being substantially similar, the estimated CIs for the 28-day adjusted fatality estimates for golden eagles and red-tailed hawks were inexplicably and unreasonably wide (Table 11).

### **3.5.2 Alternative Estimates for Bats and Focal Raptors**

As expected, the naïve fatality estimates for bats, all raptors combined, and the four focal raptor species were all at least slightly lower than the corresponding Big D and BT H-T estimates (Table 12). The differences were relatively pronounced for bats and the two smaller raptors, but small for the two larger raptors. The probability of detecting the smaller taxa (whether modeled as a function of species mass or based on raw detectability statistics) was considerably lower and more variable than the probability of detecting the two large raptors, which inflated the adjusted estimates for the smaller taxa to a proportionately greater degree. Including off-plot carcasses slightly elevated the naïve estimates for all taxa, reflecting inclusion of four off-plot incidental finds for bats and 1–2 off-plot finds for each of the raptor species (including the injured golden eagle) (Table 12).

The BT H-T fatality estimates were similar but slightly higher than the Big D modeled estimates for golden eagles and red-tailed hawks (Table 12). The slight inflation of the BT H-T estimates reflected derivation based on non-modeled estimates of carcass detectability for large birds as a group that varied from 0.8 and 1.0 depending on the season and searcher type, whereas the modeled estimates of carcass detectability based on

**Table 11. Adjusted Fatality Estimates in Year 2 for Selected Bird Species on 7-day and 28-day Survey Plots**

Survey Type	Species <sup>1</sup>	Number Found	Adjusted Fatalities Per Turbine			Adjusted Fatalities Per MW			Adjusted Total Fatalities For Turbine Group		
			Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate
7-day Interval (16 turbines)	Golden eagle	3	0.20	0.08 – 0.31	0.11	0.01 – 0.21	3	1 – 5			
	Red-tailed hawk	9	0.59	0.42 – 0.76	0.33	0.24 – 0.43	9	7 – 12			
	American kestrel	8	0.65	0.48 – 0.83	0.36	0.30 – 0.43	10	8 – 13			
	Burrowing owl	12	0.92	0.75 – 1.10	0.52	0.42 – 0.61	15	12 – 18			
	Horned lark	29	3.21	2.95 – 3.47	1.79	1.65 – 1.94	51	47 – 55			
	White-throated swift	17	1.88	1.61 – 2.15	1.05	0.90 – 1.20	30	26 – 34			
	Western meadowlark	13	1.11	0.89 – 1.33	0.62	0.50 – 0.74	18	14 – 21			
	Golden eagle	11	0.41	0.00 – 0.87	0.23	0.00 – 0.90	–	12	0 – 26		
28-day Interval (32 turbines)	Red-tailed hawk	19	0.73	0.15 – 1.31	0.41	0.08 – 0.73	20	2 – 39			
	American kestrel	1	0.31	0.15 – 0.48	0.18	0.08 – 0.27	9	3 – 14			
	Burrowing owl	11	3.01	2.55 – 3.47	1.68	1.43 – 1.94	84	70 – 99			
	Horned lark	5	2.12	1.82 – 2.42	1.19	1.02 – 1.35	59	50 – 69			
	White-throated swift	2	1.03	0.81 – 1.24	0.57	0.45 – 0.70	29	22 – 36			
	Western meadowlark	2	0.71	0.49 – 0.92	0.39	0.27 – 0.51	20	13 – 27			

<sup>1</sup> Selected species represent the four focal raptor species and all other native bird species for which ≥5 fatalities were documented during Year 2. See Appendix E for comprehensive fatality estimates by species.

average species mass were consistently 1.0 for eagles and always >0.97 for red-tailed hawks. In contrast to the case for the two large raptors, the Big D estimates for American kestrels and burrowing owls were notably higher than the BT H-T estimates for those species (Table 12). The greater differences for these species reflected that the estimates of carcass detectability on 28-day survey plots predicted based on average mass were lower for species the size of American kestrels and burrowing owls (0.12–0.13) than were the non-modeled detectability estimates for medium-sized birds as a group (0.22–0.33).

**Table 12. Golden Hills Annual Fatality Estimates for Selected Species and Groups Derived from Different Estimation Approaches, Based on Carcasses Deposited During the Year 2 Survey Period**

Group/Species	Estimated Annual Fatalities per MW by Estimation Method				
	Big D Approach <sup>1</sup>	No BT H-T <sup>2</sup>	BT H-T <sup>3</sup>	Naïve With Off-plots <sup>4</sup>	Naïve No Off-plots <sup>5</sup>
Bats	na	na	5.82	1.44	1.40
All raptors	2.17	na	1.52	1.08	1.01
Golden eagle	0.17	na	0.19	0.16	0.15
Red-tailed hawk	0.37	na	0.38	0.35	0.33
American kestrel	0.27	na	0.16	0.13	0.10
Burrowing owl	1.10	na	0.62	0.29	0.27

<sup>1</sup> Based on methods outlined in Brown et al. 2016, Smallwood and Neher 2016, and Smallwood 2017, with bleed-through allowed (i.e., researchers have multiple opportunities to detect a given trial carcass/fatality) and carcass detectability modeled as a function of average species mass (see Section 2.4). Not applicable to bats because developing a model to predict detectability of bats based on average species mass is unnecessary with scent-detection dogs as searchers, and detectability estimates could not be rendered for bats on 28-day plots searched by humans due to an absence of bat trial detections.

<sup>2</sup> Simplified application of Horvitz-Thompson (H-T) estimator with searcher efficiency evaluated with no bleed-through allowed (single detection opportunity)—applicable in Year 1 but not in Year 2, because integrated Big D approach to evaluating carcass detectability precluded rendering estimates based only on first-opportunity searcher efficiency.

<sup>3</sup> Simplified application of H-T estimator with non-modeled carcass detectability evaluated with bleed-through allowed (multiple detection opportunities). Considered the relevant adjusted fatality estimate for bats in Year 2.

<sup>4</sup> Estimates based on fatality totals that were not adjusted for imperfect carcass detection and included off-plot incidental carcasses.

<sup>5</sup> Estimates based on fatality totals that were not adjusted for imperfect carcass detection and excluded off-plot incidental carcasses.

### 3.5.3 Interannual Comparisons

For bats as a group and the two predominant species, the adjusted annual facility-wide estimates derived for Year 2 were substantially similar to the estimates previously produced for Year 1 using the Huso DS729 estimation approach (Table 13). Mexican free-tailed bat fatalities were estimated to be slightly more common in Year 2 than in Year 1, whereas the Year 1 and 2 estimates for hoary bats were essentially the same. Note, however, that the precision of the Year 2 annual estimates was substantially improved compared to the estimates derived for Year 1 using the Huso DS729 estimation routine (as indicated by 40–70% reductions in the proportional widths of the 95% CIs).

**Table 13. Facility-Wide Raw Fatality Counts, Totals Filtered for Analysis, and Adjusted Fatality Estimates (95% Confidence Interval) for Selected Species and Species Groups of Bats and Birds in Monitoring Years 1 and 2**

Taxon	Year 1			Year 2				
	Raw / Filtered Fatality Counts <sup>1</sup>	Adjusted Fatalities Per Turbine <sup>2</sup>	Adjusted Fatalities Per MW <sup>2</sup>	Adjusted Total Fatalities <sup>2</sup>	Raw Fatality Counts <sup>3</sup>	Adjusted Fatalities Per Turbine <sup>4</sup>	Adjusted Fatalities Per MW <sup>4</sup>	Adjusted Total Fatalities <sup>4</sup>
All bats	221 / 154	9.73 (6.63–18.73)	5.45 (3.70–10.47)	468 (318–900)	120	10.41 (6.78–14.03)	5.82 (3.79–7.84)	500 (326–674)
Mexican free-tailed bat	129 / 89	5.34 (3.64–9.73)	2.99 (2.03–5.45)	257 (174–468)	68	5.77 (3.70–7.83)	3.22 (2.07–4.37)	277 (178–376)
Hoary bat	80 / 61	4.13 (2.57–8.63)	2.32 (1.43–4.83)	199 (123–415)	46	4.10 (3.10–5.11)	2.29 (1.73–2.86)	197 (149–245)
All birds	286 / 208	11.43 (8.86–16.29)	6.39 (4.95–9.10)	549 (425–782)	218	14.03 (10.81–17.24)	7.84 (5.37–10.30)	607 (464–750)
Small birds	180 / 1	8.85 (6.38–13.81)	4.95 (3.56–7.72)	425 (306–663)	127	10.02 (6.85–13.19)	5.60 (3.83–7.37)	417 (285–550)
Medium birds	19 / 17	0.46 (0.24–0.76)	0.27 (0.13–0.43)	23 (11–37)	39	2.80 (1.84–3.75)	1.56 (1.03–2.10)	134 (86–183)
Large birds	87 / 77	2.13 (1.58–2.86)	1.20 (0.87–1.61)	103 (75–138)	52	1.21 (0.00–2.51)	0.68 (0.00–1.40)	55 (0–126)
Raptors	94 / 79	2.32 (1.72–3.15)	1.30 (0.95–1.77)	112 (82–152)	86	3.88 (3.32–4.44)	2.17 (1.19–3.14)	184 (163–205)
Nonraptors	192 / 129	9.11 (6.58–14.05)	5.10 (3.67–7.86)	438 (315–675)	132	10.15 (7.49–12.81)	5.67 (4.19–7.15)	423 (300–545)
Golden eagle	10 / 6	0.21 (0.07–0.40)	0.13 (0.03–0.23)	11 (3–20)	13	0.31 (0.00–0.62)	0.17 (0.00–0.35)	15 (0–32)
Red-tailed hawk	60 / 49	1.62 (1.12–2.29)	0.91 (0.62–1.28)	78 (53–110)	28	0.66 (0.29–1.04)	0.37 (0.16–0.58)	30 (9–51)
American kestrel	4 / 3	0.10 (0.03–0.22)	0.06 (0.01–0.13)	5 (1–11)	9	0.48 (0.34–0.62)	0.27 (0.19–0.35)	19 (12–26)
Burrowing owl	2 / 2	0.07 (0.03–0.19)	0.05 (0.01–0.12)	4 (1–10)	23	1.97 (1.65–2.28)	1.10 (0.92–1.28)	99 (82–117)
Horned lark	43 / 29	1.95 (1.09–3.34)	1.09 (0.61–1.87)	94 (52–161)	34	2.66 (2.39–2.94)	1.49 (1.33–1.64)	111 (97–124)
White-throated swift	16 / 13	0.94 (0.42–1.74)	0.54 (0.23–0.98)	46 (20–84)	19	1.45 (1.21–1.70)	0.81 (0.68–0.95)	59 (48–70)
Western meadowlark	26 / 21	1.54 (0.94–2.66)	0.86 (0.52–1.49)	74 (45–128)	15	0.91 (0.69–1.12)	0.51 (0.38–0.63)	37 (27–48)
House wren	23 / 18	1.17 (0.58–2.23)	0.66 (0.31–1.26)	57 (27–108)	1	0.06 (0.03–0.10)	0.03 (0.01–0.05)	2 (1–3)

<sup>1</sup> Excludes incidental off-plot finds. Filtering included removing carcasses aged as having been deposited more than one search-interval (either 7 days or 28 days) before a given survey occurred, consistent with the no bleed-through assumption of the Huso (2011, 2012) DS729 fatality estimator.

<sup>2</sup> Adjusted estimates derived using the Huso DS729 estimator, based on independent estimates of searcher efficiency and carcass persistence.

<sup>3</sup> Excludes incidental off-plot finds.

<sup>4</sup> Adjusted estimates derived using the Big D estimation approach, based on integrated assessments of carcass detectability and, for birds, modeling of detectability in relation to the average body mass of relevant species.

For birds, the Year 2 adjusted facility-wide fatality estimates were slightly higher than the Year 1 estimates for all birds combined, slightly lower for small birds as a group, notably lower for large birds as a group, and notably higher for medium birds as group and for all raptors combined (Table 13). For the four focal raptor species, the Year 2 facility-wide estimates were approximately 48% higher than in Year 1 for golden eagles, 62% lower for red-tailed hawks, almost three times higher for American kestrels, and almost 24 times higher for burrowing owls (Table 13). For the other four native bird species documented as fatalities in both years, and with  $\geq 5$  documented fatalities in one or both years eligible for inclusion in the adjusted fatality estimates, the Year 2 facility-wide estimates were approximately 18% higher than in Year 1 for horned larks, 49% lower for western meadowlarks, 96% lower for house wrens, and 28% higher for white-throated swifts. In addition, similar to the case for bats, the precision of the Year 2 annual estimates generally was substantially improved compared to the estimates derived for Year 1 (15–80% reductions in the proportional widths of the 95% CIs); however, notable exceptions were evident for large birds as a group and for golden eagles and red-tailed hawks, for which the widths of the Year 2 CIs were inexplicably 133–417% wider than those from Year 1.

### 3.6 Temporal Distribution of Fatalities

In Year 2, the detection-dog teams discovered one or more bats on the 7-day plots in every month except January and February. They found 57% of those fatalities in late September and October 2017 during fall migration, and 21% in May and June 2018 during spring migration. Across both monitoring years, the adjusted fatality counts for 7-day plots only (a different set of 16 plots for each annual period, all surveyed by detection dogs) indicated a major activity peak during fall 2017 that extended from mid-August through October, whereas the bat fatality estimates from August through mid-September 2018 were comparatively very low (Figure 8). In contrast, the adjusted data indicated similar activity levels during spring migration/early summer in 2017 and 2018 (Figure 8).

Across the first two monitoring years, the detection dog teams documented one or more raptor fatalities on 7-day plots in all but 4 of 24 months, and the dog teams in Year 1 and the human searchers in Year 2 documented one or more raptor fatalities on 28-day plots in every month. Over the 2 years, red-tailed hawks comprised nearly 50% of the documented raptor fatalities, with adjusted fatality numbers peaking in fall and early winter, declining through spring, and lowest in summer (Figure 9). In comparison, golden eagle fatalities were broadly distributed across both monitoring years and were comparatively common during late spring and early summer (Figure 9). Fatalities of American kestrels and burrowing owls were scarce during Year 1, but increased beginning in fall 2017. American kestrel fatalities were relatively common during fall/winter 2017/2018. For burrowing owls, the highest unadjusted monthly tally of four fatalities occurred in October 2017, but we documented 2–3 burrowing owl fatalities every month from January through September 2018, which variable carcass detectability adjustments for 7-day and 28-day surveys inflated to noteworthy estimates across this period (Figure 9).

In Year 1, the detection-dog teams discovered one or more nonraptor bird fatalities on both the 7-day and 28-day plots in every month (Figure 10). In Year 2, the detection-dog teams continued to discover one or more nonraptor bird fatalities on the 7-day plots every month, whereas the human searchers working the 28-day plots detected nonraptor birds in only 8 of 12 months. Based on combining adjusted fatality numbers across all

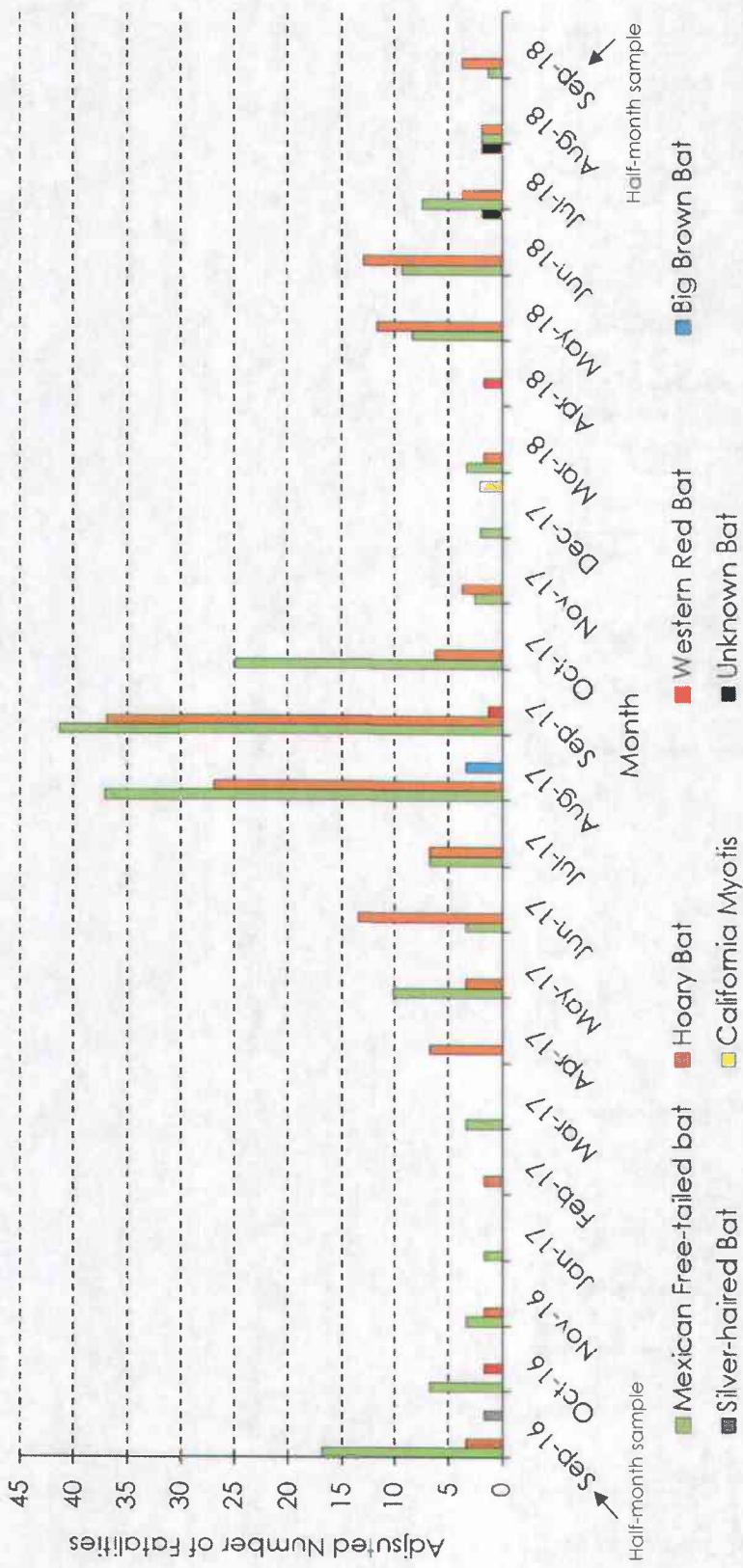
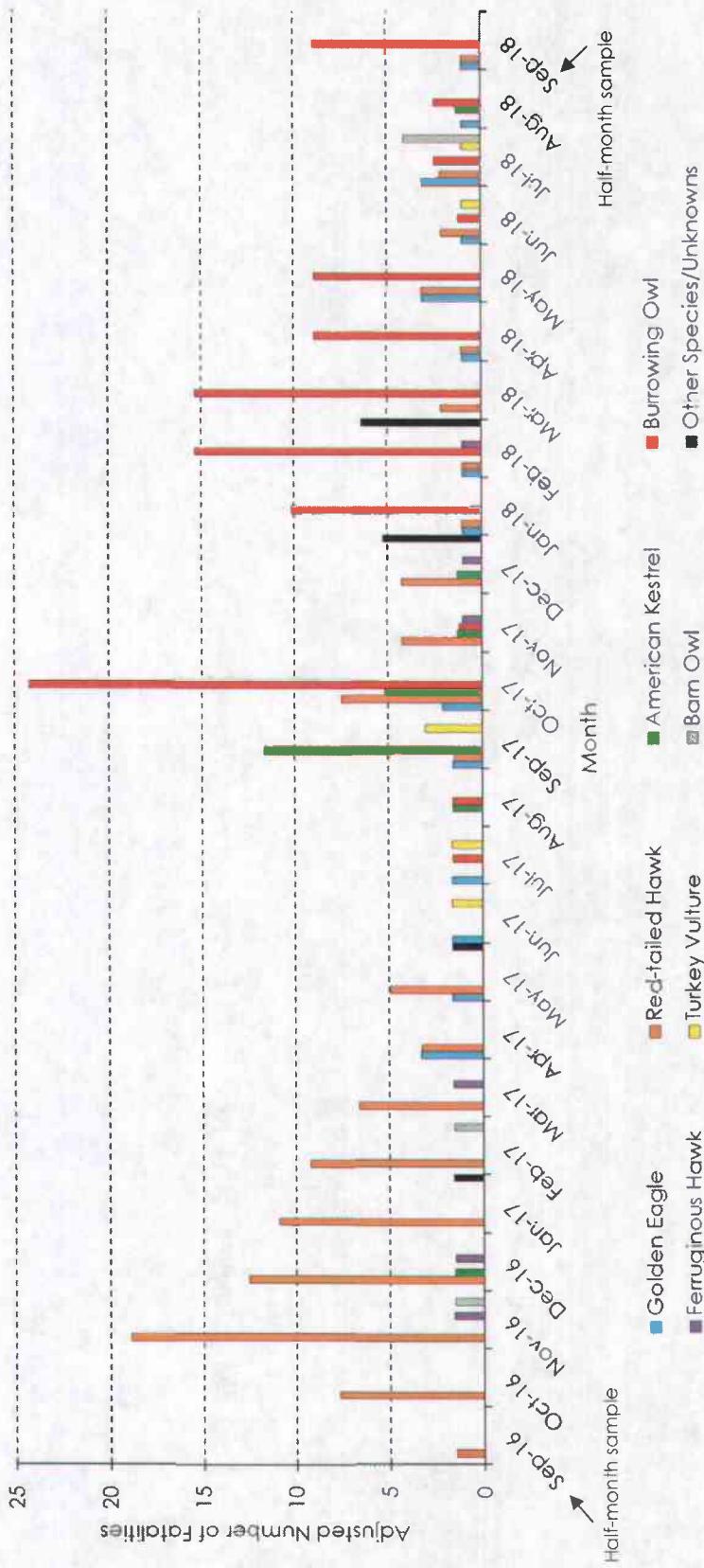
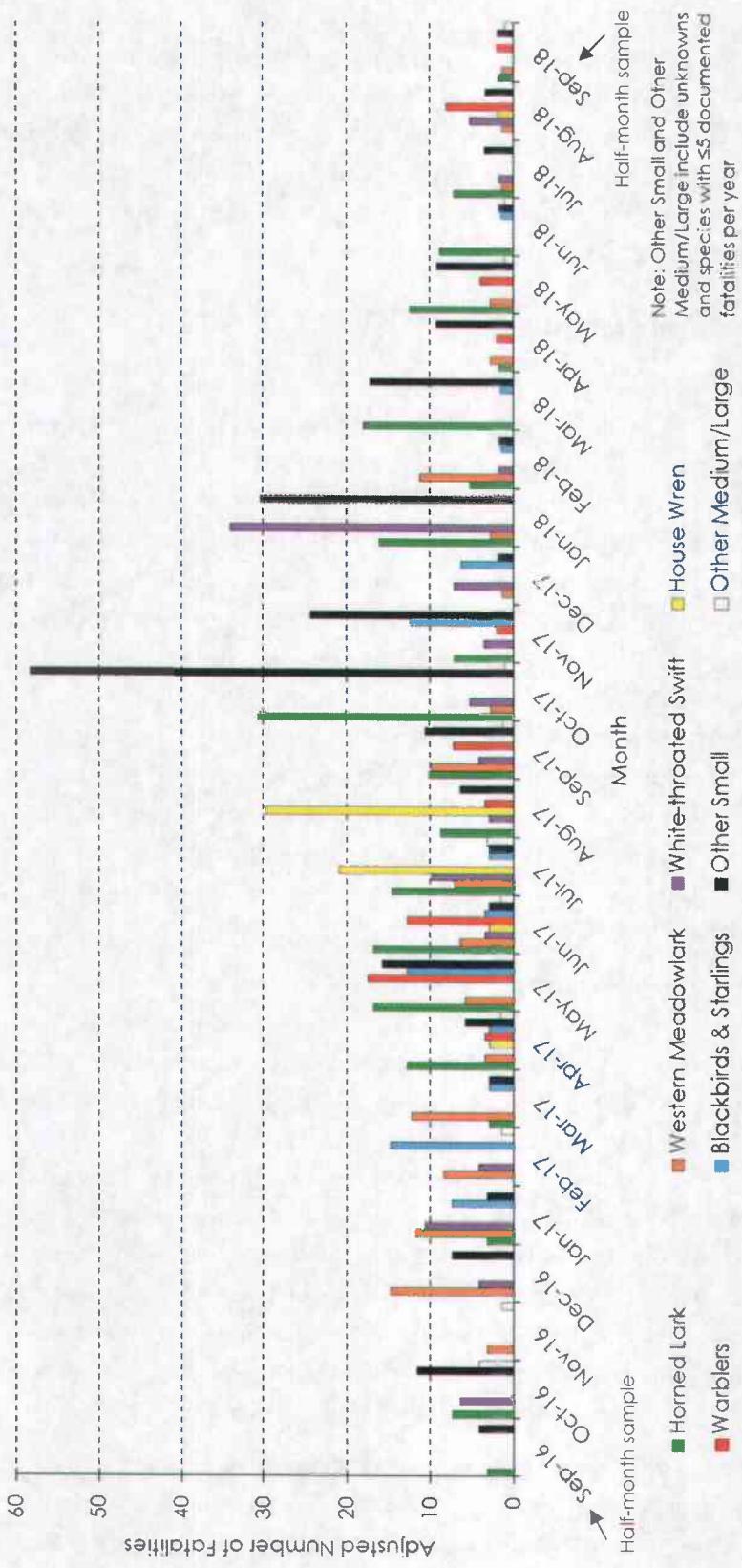


Figure 8. Adjusted Estimates of Bat Fatalities by Species and Month Through Year 2



**Figure 9.** Adjusted Estimates of Raptor Fatalities by Species and Month Through Year 2



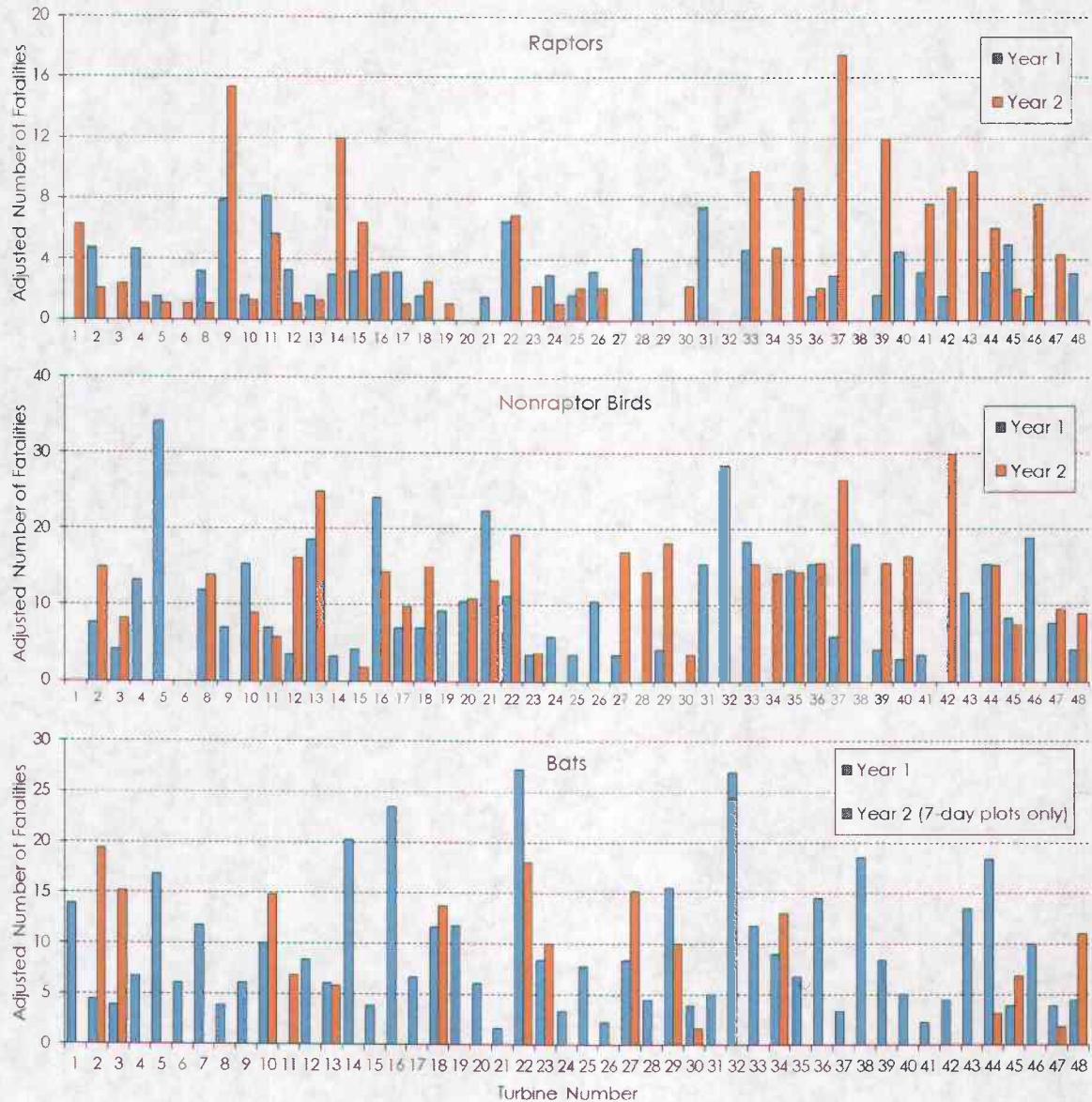
survey plots and both years, to date the most concentrated multi-species fatality activity for nonraptor birds occurred from spring through fall 2017, with the numbers and species diversity comparatively modest during the same period in 2018 (Figure 10). In contrast, although relatively few nonraptor bird species are commonly represented during winter (mostly limited to meadowlarks, blackbirds, starlings, and white-throated swifts), for most such species the estimated fatality rates were noticeably higher from late fall through winter in 2017/2018 than they were during the same period in 2016/2017.

### 3.7 Spatial Distribution of Fatalities

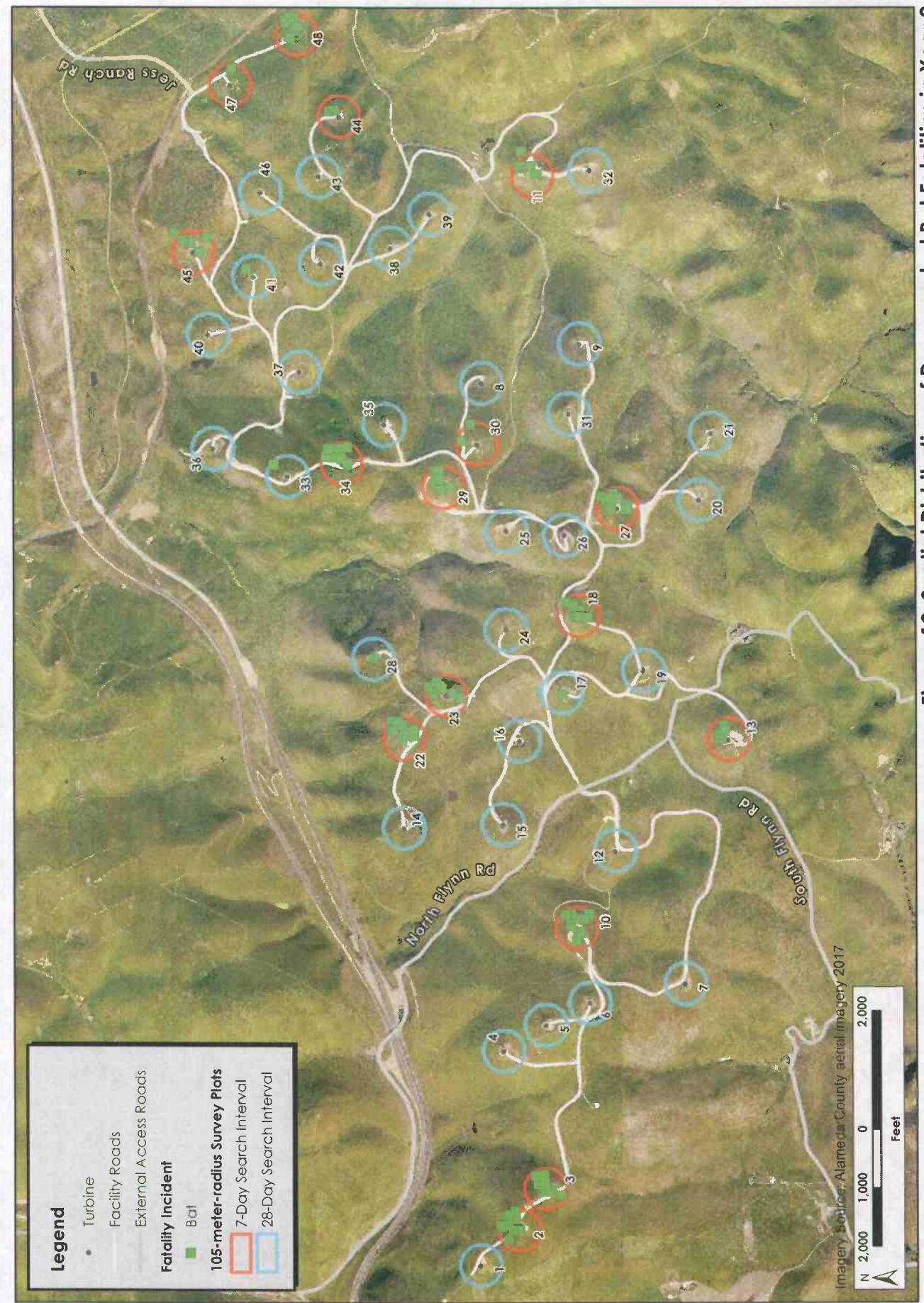
The detection-dog teams found at least one bat fatality on every turbine plot in Year 1, and at least one additional bat fatality on each of the 7-day plots in Year 2, whereas the human surveyors found only four bats in Year 2, each on a different 28-day plot (at wind turbine generators [WTGs] 17, 28, 33, and 41) (Figures 11 and 12). In Year 1, the dog teams detected  $\geq 10$  bat fatalities on half of the 48 survey plots, and in Year 2 they discovered  $\geq 10$  bat fatalities on 7 of the 16 7-day plots. Excluding carcasses that were aged as being deposited before the Project began (H. T. Harvey & Associates 2018a), the unadjusted annual numbers of bat fatalities found on individual 7-day survey plots averaged  $6.4 \pm 2.94$  (SD) fatalities per plot (range 0–12) in Year 1 and  $7.3 \pm 3.94$  fatalities per plot (range 0–13) in Year 2. In contrast, based on adjusted estimates, the per-turbine bat fatality rate on 7-day plots was higher in Year 1 ( $12.6 \pm 8.06$  fatalities per turbine) than in Year 2 ( $10.4 \pm 5.61$  fatalities per turbine). However, in neither case were the differences statistically significant (*t*-test,  $P > 0.05$ ). For bats, the adjusted annual turbine-specific fatality estimates most often indicated that the detection-dog teams found more bat fatalities on 7-day plots in Year 2 than they did based on surveying the same plots at 28-day intervals in Year 1 (Figure 11). Otherwise, the only partially matched, adjusted per-turbine fatality estimates from the two monitoring years did not emphasize any obvious multi-year hotspots, except for perhaps at WTG 22 along the north-central edge of the facility (Figures 2 and 11).

For nonraptor birds, the first 2 years of monitoring revealed 28 turbine plots with one or more fatalities in both years, and 20 turbine plots with one or more fatalities in only one of the two monitoring years (13 turbines in Year 1 and 7 turbines in Year 2) (Figures 11 and 13). Excluding carcasses aged as being deposited before the Project began (H. T. Harvey & Associates 2018a), the unadjusted annual numbers of nonraptor fatalities found on individual survey plots averaged  $3.7 \pm 3.55$  fatalities per plot (range 0–19) in Year 1 and  $2.8 \pm 3.65$  fatalities per plot (range 0–14) in Year 2. The adjusted fatality estimates revealed a similar pattern:  $9.3 \pm 7.93$  fatalities per plot in Year 1 and  $8.2 \pm 7.86$  fatalities per plot in Year 2. Again, however, none of the differences were statistically significant. For nonraptors and based on adjusted fatality estimates, relative concentration points appeared slightly more prevalent in Year 1 than in Year 2 (Figure 11). The adjusted nonraptor fatality totals were relatively high at WTGs 13, 37, and especially 42 in Year 2 (Figure 14). In contrast, with the data aggregated across both monitoring years, WTGs 13 and 16 stood out with at least moderate adjusted fatality numbers in both years, while WTG 5 emerged as a notable concentration point, but only in Year 1 (Figure 15).

For raptors, the first two monitoring years revealed 34 turbine plots with one or more raptor fatalities in both years, 10 plots with one or more raptor fatalities in only one of the two years (six turbines in Year 1 and four turbines in Year 2), and 4 plots with no raptor fatalities to date (Figures 11 and 16). Excluding carcasses that were aged as being deposited before the Project began (H. T. Harvey & Associates 2018a), the unadjusted



**Figure 11. Adjusted Annual Estimates of Raptor, Nonraptor Bird, and Bat Fatalities by Turbine in Years 1 and 2**

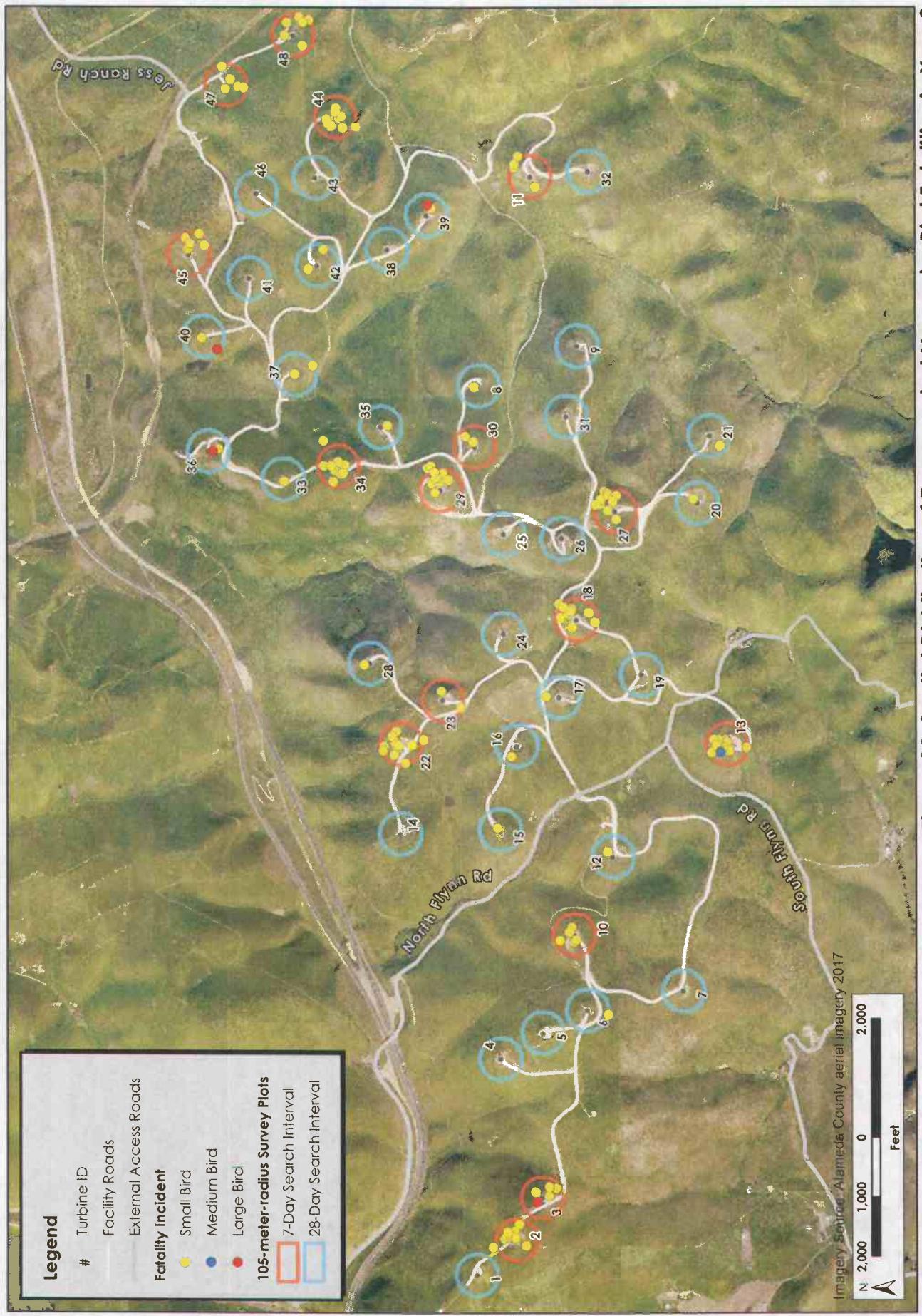


**Figure 12. Spatial Distribution of Documented Bat Fatalities in Year 2**

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November 2018

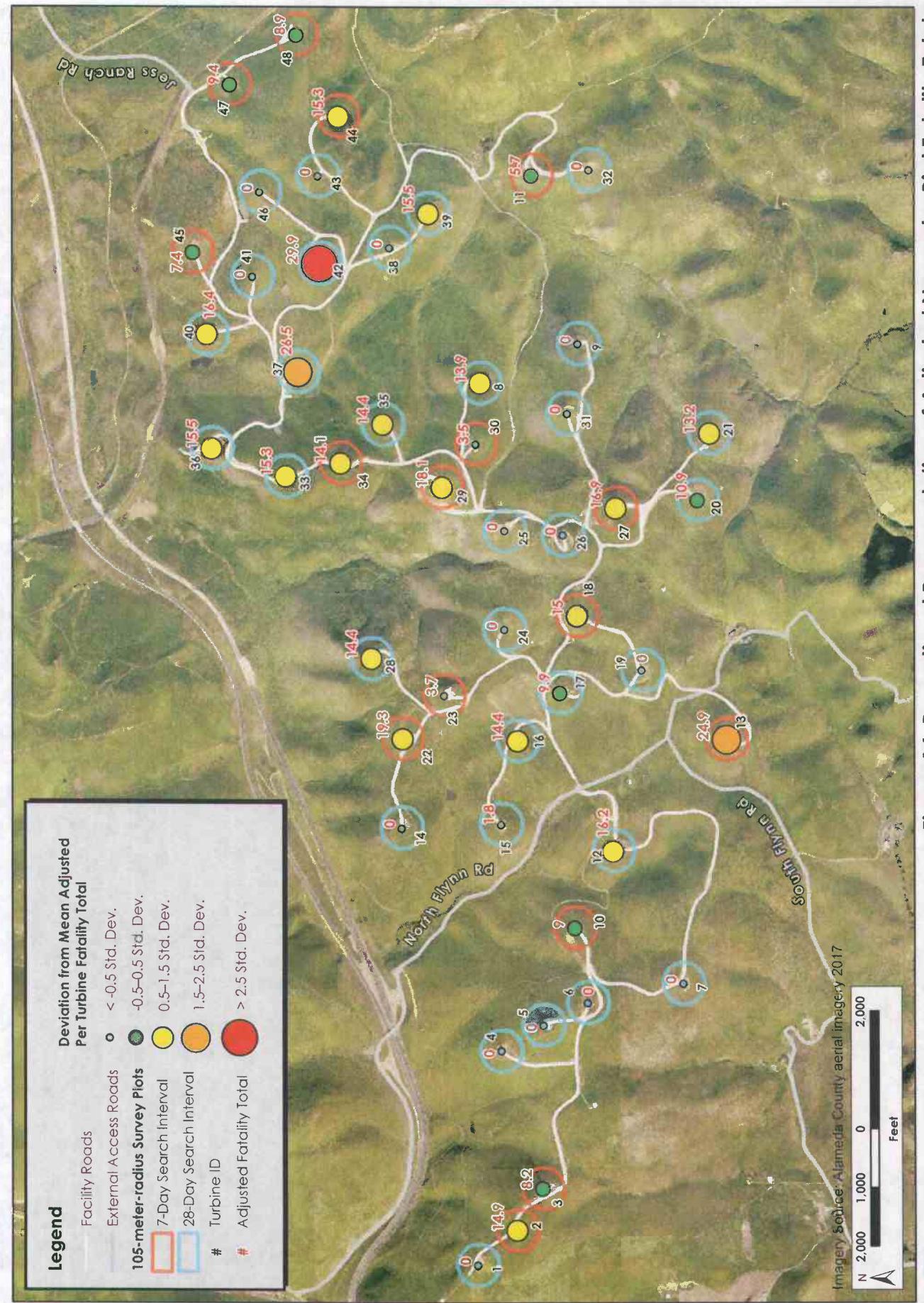
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**Figure 13. Spatial Distribution of Documented Nonraptor Bird Fatalities in Year 2**  
Golden Hills Postconstruction Fatality Monitoring: Year 2 (3926-01)  
November 2018



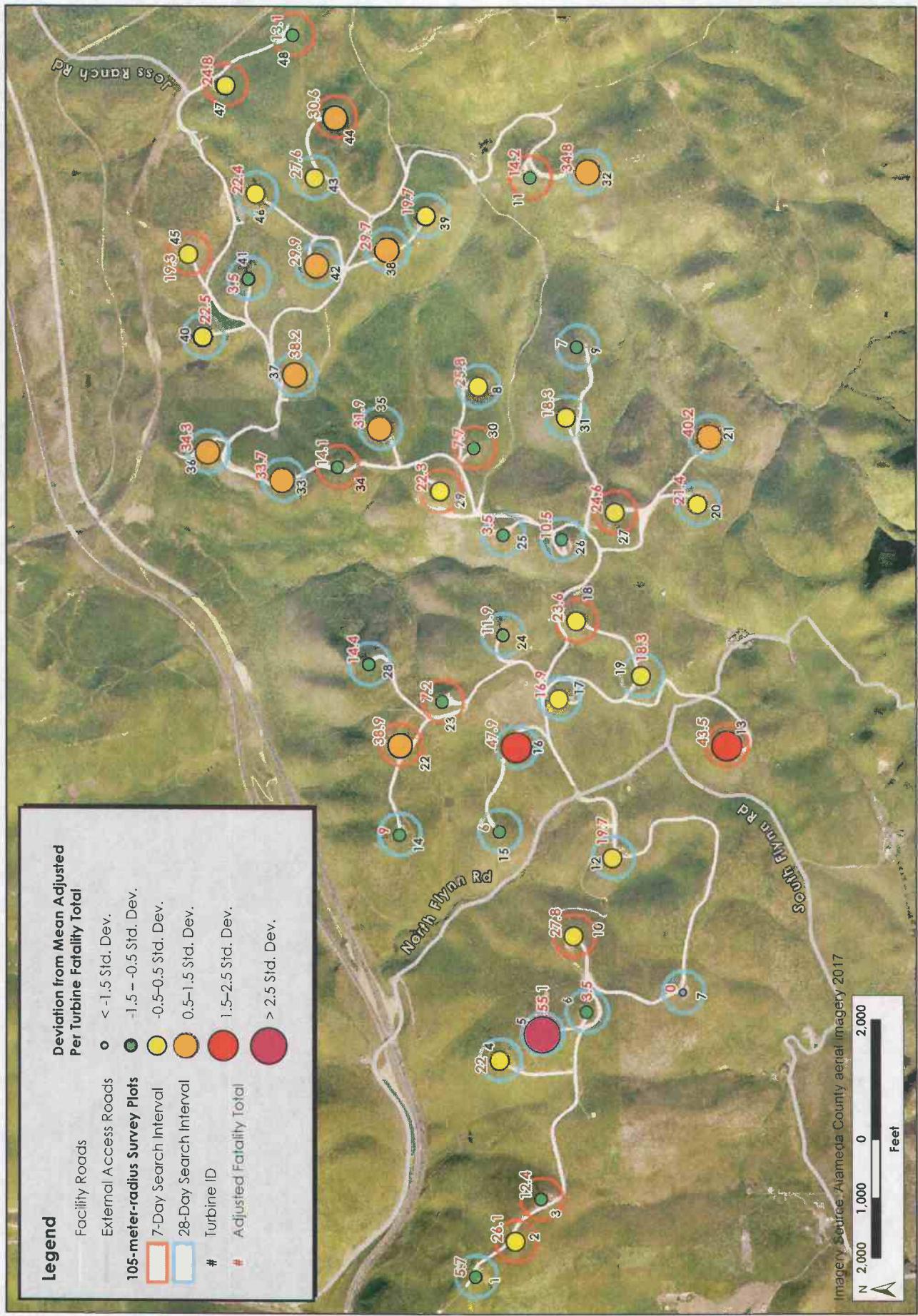


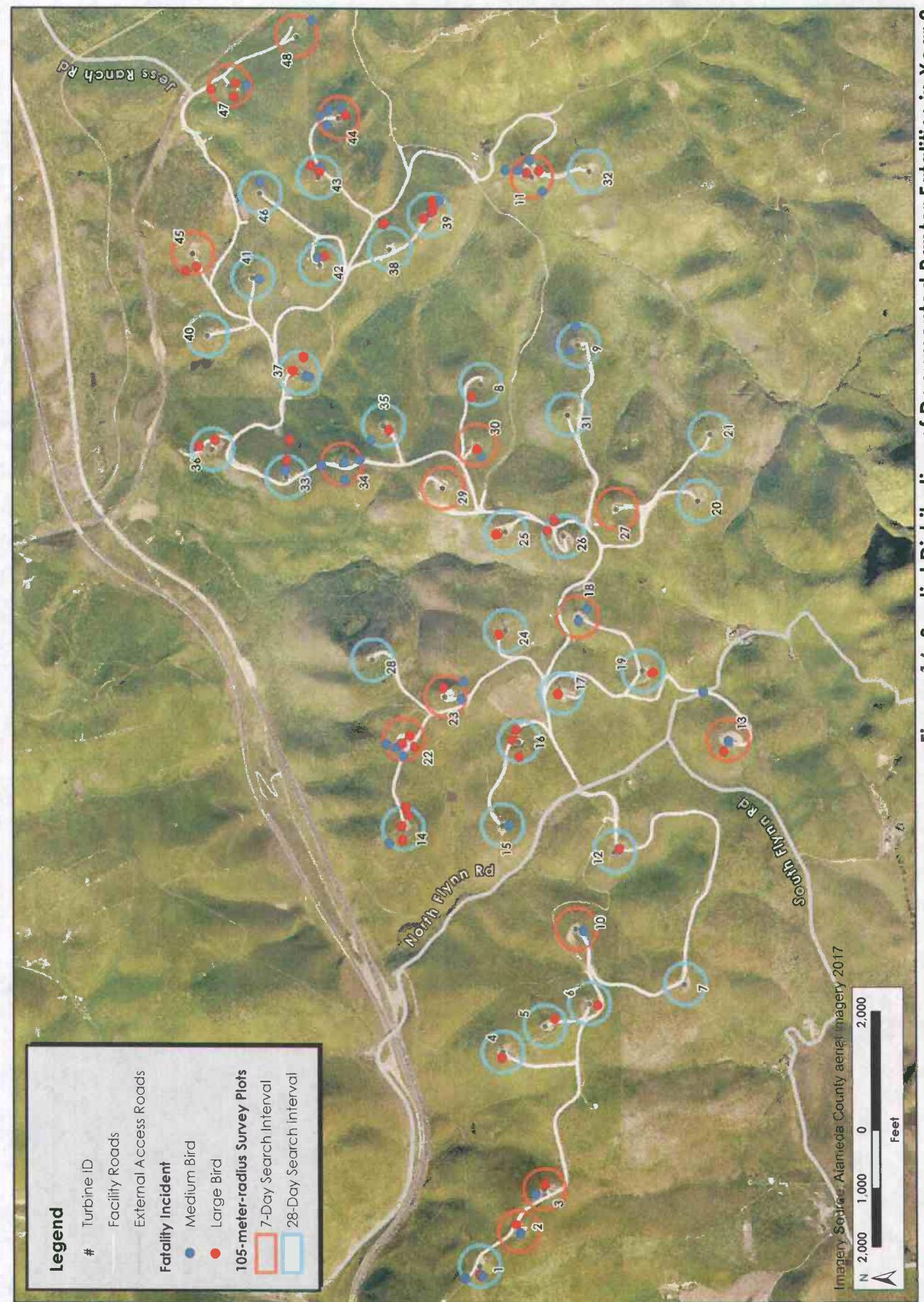
**Figure 14. Proportional Representation of Adjusted Nonraptor Bird Fatality Totals Across the Facility in Year 2**

Golden Hills Postconstruction Fatality Monitoring: Year 2 (3926-01)  
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**Figure 15. Proportional Representation of Adjusted Nonraptor Bird Fatality Totals Across the Facility for Years 1 and 2 Combined**





**Figure 16. Spatial Distribution of Documented Raptor Fatalities in Year 2**

Golden Hills Postconstruction Fatality Monitoring: Year 2 (3926-01)  
November 2018

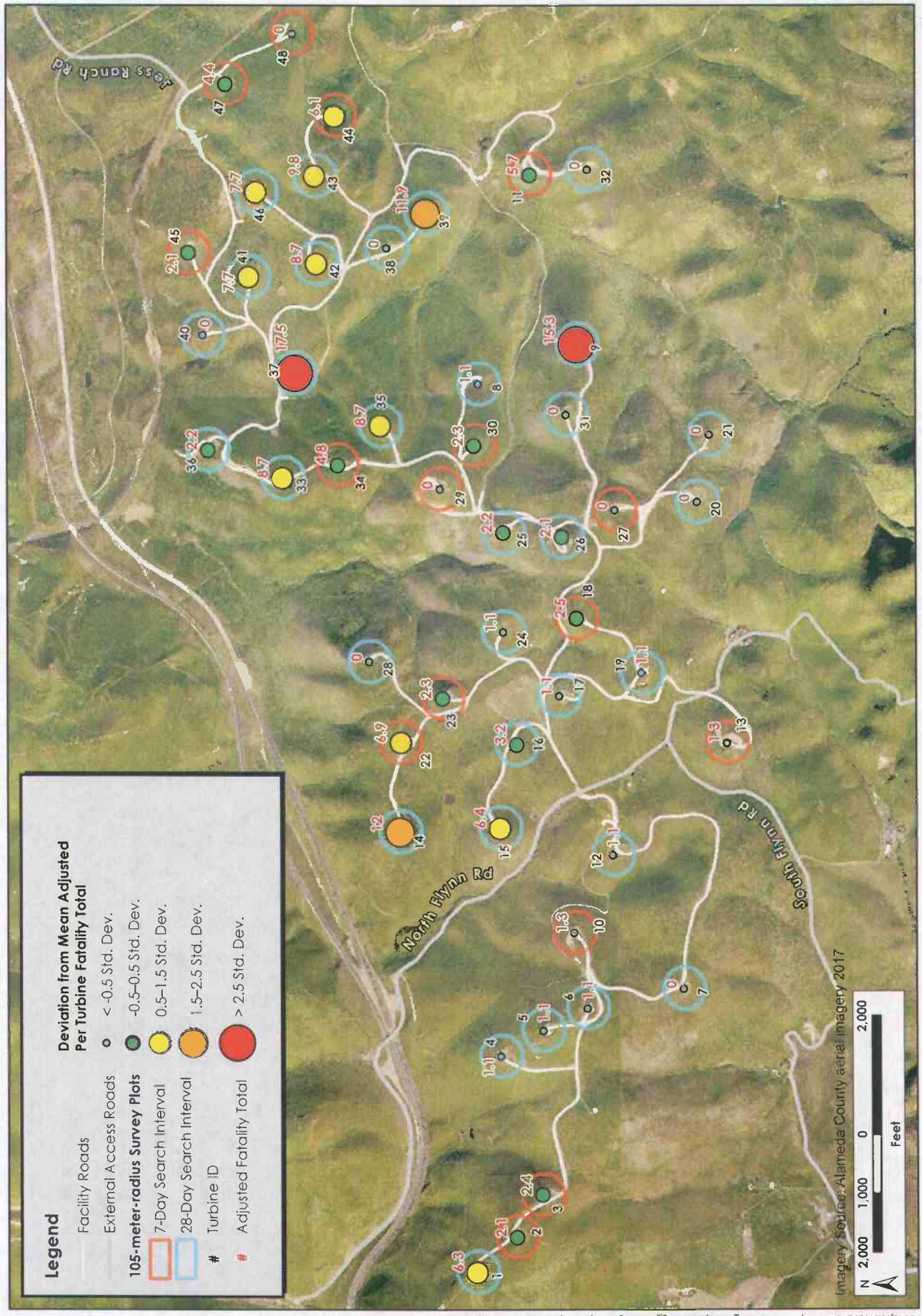
annual numbers of raptor fatalities found on individual survey plots (both 7-day and 28-day) averaged  $1.8 \pm 1.49$  fatalities per plot (range 0–6) in Year 1 and  $1.8 \pm 1.58$  fatalities per plot (range 0–6) in Year 2. The adjusted fatality estimates revealed a similar pattern:  $2.4 \pm 2.40$  fatalities per plot (range 0–9) in Year 1 and  $2.7 \pm 2.53$  fatalities per plot (range 0–11) in Year 2. Again, however, none of the differences were statistically significant. The adjusted annual fatality estimates varied across turbines, but overall remained relatively consistent during Years 1 and 2 in the western half to two-thirds of the facility, but were markedly higher in the eastern third of the facility in Year 2 compared to Year 1 (Figure 11; WTG numbering from 1 through 48 generally runs from west to east, with a few exceptions—see Figure 2). The adjusted raptor fatality totals were relatively high at WTGs 14, 39, and especially 9 and 37 in Year 2 (Figure 17). With the data aggregated across both monitoring years, the picture did not change appreciably, except that WTGs 9 and 37 did not stand out quite as much as hot spots, WTG 11 emerged as a moderate hot spot with multiple fatalities in both years, and WTGs 1, 31, and 35 emerged as year-specific, moderate hot spots (Figure 18). An integrated 2-year depiction of fatalities was most useful for illustrating the spatial pattern for golden eagles. This display identified WTGs 11 and 14 as relative hot spots, each with three documented fatalities and at least one fatality in both years (Figure 19). WTGs 12, 16, and 39 were other turbines at which we documented more than one eagle fatality during the 2 years.

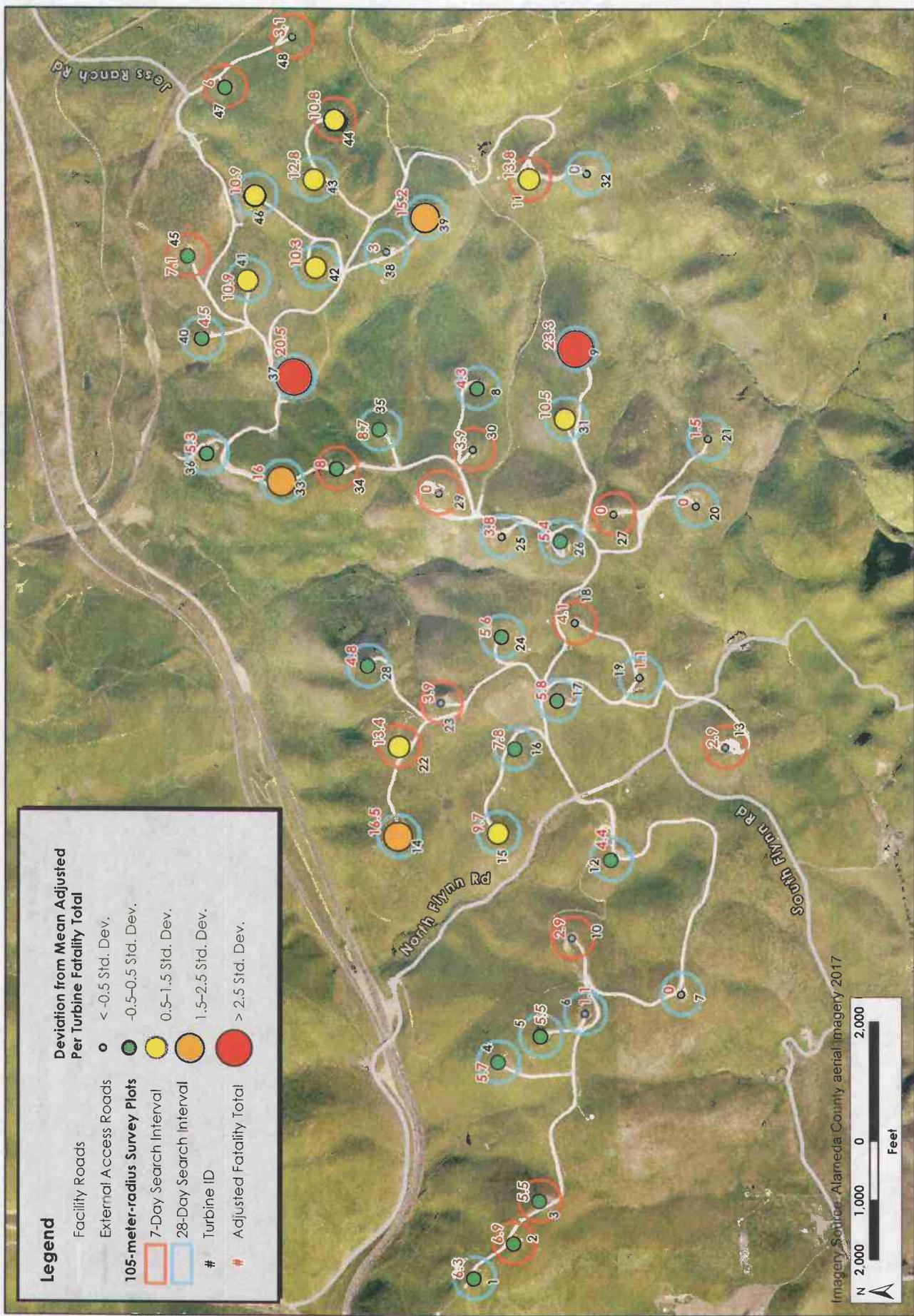
For red-tailed hawks, six turbines stood out as moderate hot spots in Year 2, with 2–3 estimated fatalities each (Figure 20). Four of these turbines also emerged as relative hot spots based on the 2-year dataset, with WTGs 22 and 39 showing as relatively strong hot spots with multiple fatalities in both years (Figure 21). The aggregated 2-year dataset also revealed a scattering of other moderate hot spots that emerged because of documented fatalities in both years. In contrast, it was noteworthy that although WTGs 9, 11, and 31 emerged as a distinct raptor fatality cluster in the southeast sector in Year 1, and continued to be emphasized in the aggregated 2-year dataset (Figure 21), no red-tailed hawk fatalities occurred at these turbine locations in Year 2 (Figure 20).

With only four fatalities total and three suited to fatality estimation, evaluating the spatial distribution of American kestrel fatalities was not a particularly relevant interest for Year 1. Moreover, to date we have documented more than one kestrel fatality only at WTGs 11, 13, and 44, and we have documented a kestrel fatality in both years only at WTG 44. Based on adjusted fatality estimates and the 2-year integrated dataset, WTG 44 stood out as a moderate hotpot and WTG 14 stood out as a relatively strong hot spot (Figure 22); however, the latter estimate reflected a single fatality record that was inflated to a high adjusted estimate because of low predicted carcass detectability for carcasses of that size on the 28-day plots in Year 2.

With only two burrowing owl fatalities documented, evaluating spatial distribution was also not a relevant interest for that species in Year 1, whereas 25 documented fatalities in Year 2, most of which were suited to fatality estimation, provided a more-robust basis for pursuing a spatial evaluation. To date, we have documented two burrowing owl fatalities at seven turbines (including one fatality each in both monitoring years at WTGs 11 and 18) and three fatalities at WTG 44. The aggregated 2-year adjusted fatality dataset emphasized a clustering of burrowing owl fatalities in the northeast sector of the facility; however, WTG 9 also emerged as a strong hot spot in Year 2 (Figure 23). We note, however, that although the unadjusted fatality numbers also draw attention to the northeast cluster, the identification of multiple turbines in this sector as moderate to strong hot spots reflected adjusted fatality estimates that were notably inflated by low predicted carcass-detectability estimates for smaller carcasses on the 28-day survey plots in Year 2.

**Figure 17. Proportional Representation of Adjusted Raptor Fatality Totals Across the Facility in Year 2**

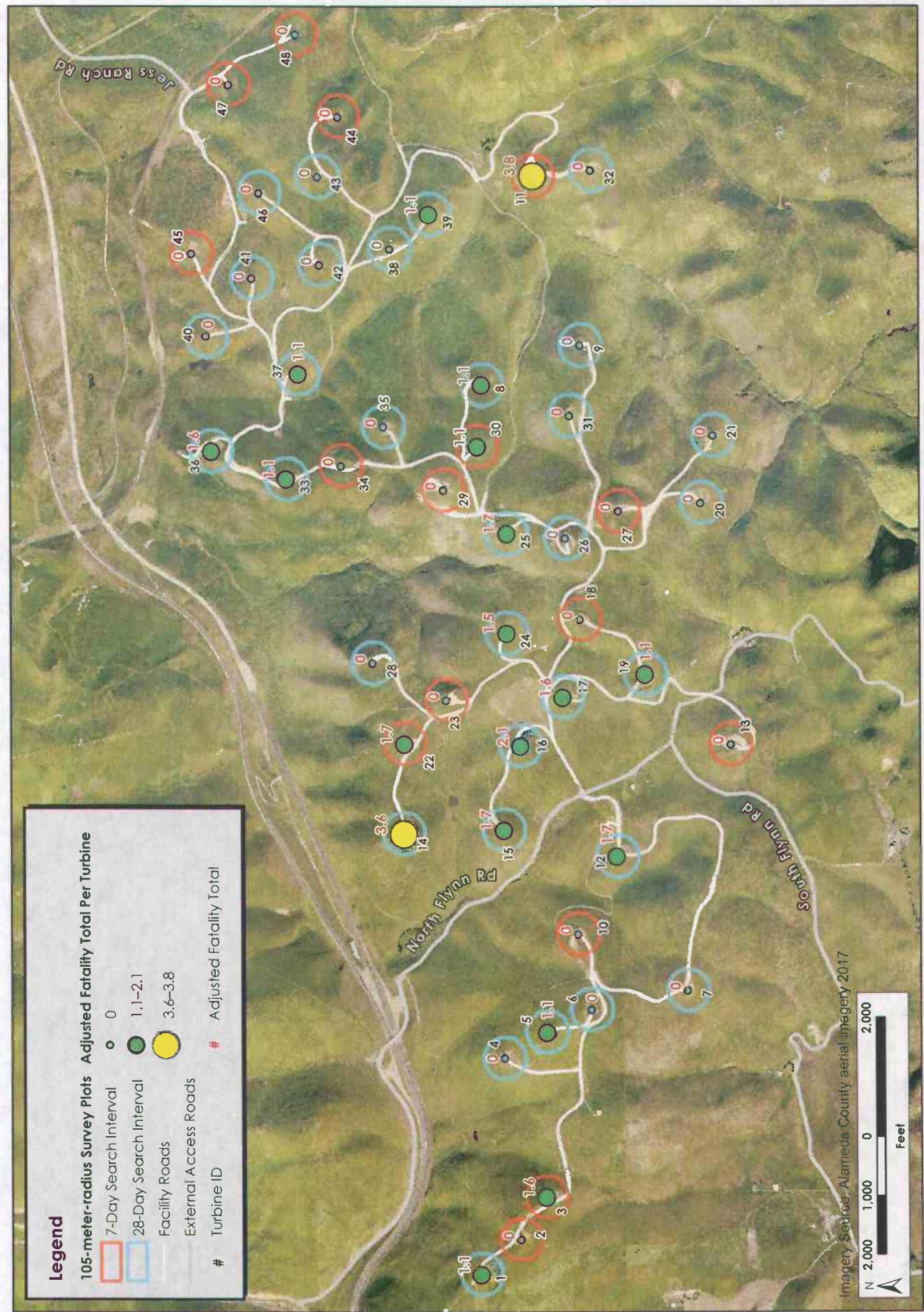




**Figure 18. Proportional Representation of Adjusted Raptor Fatality Totals Across the Facility for Years 1 and 2 Combined**

Project ID: 3926-01-TR-Report5PostConstruction\_FatalityMonitoring\_Year2Fig\_17\_Adj\_FatalityTotalsYear2\_Raptor.dwg  
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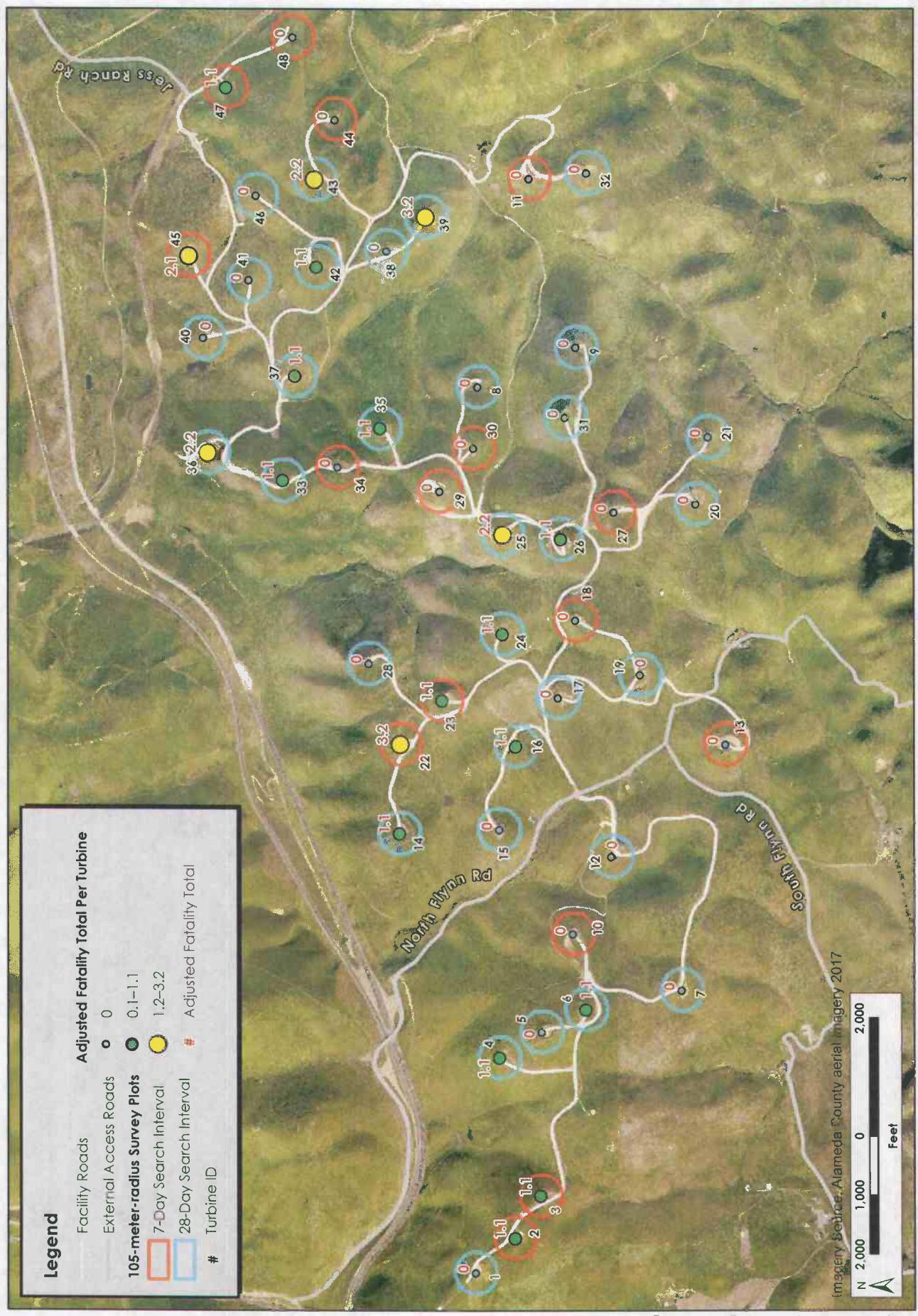




**Figure 19. Proportional Representation of Adjusted Golden Eagle Fatality Totals Across the Facility for Years 1 and 2 Combined**

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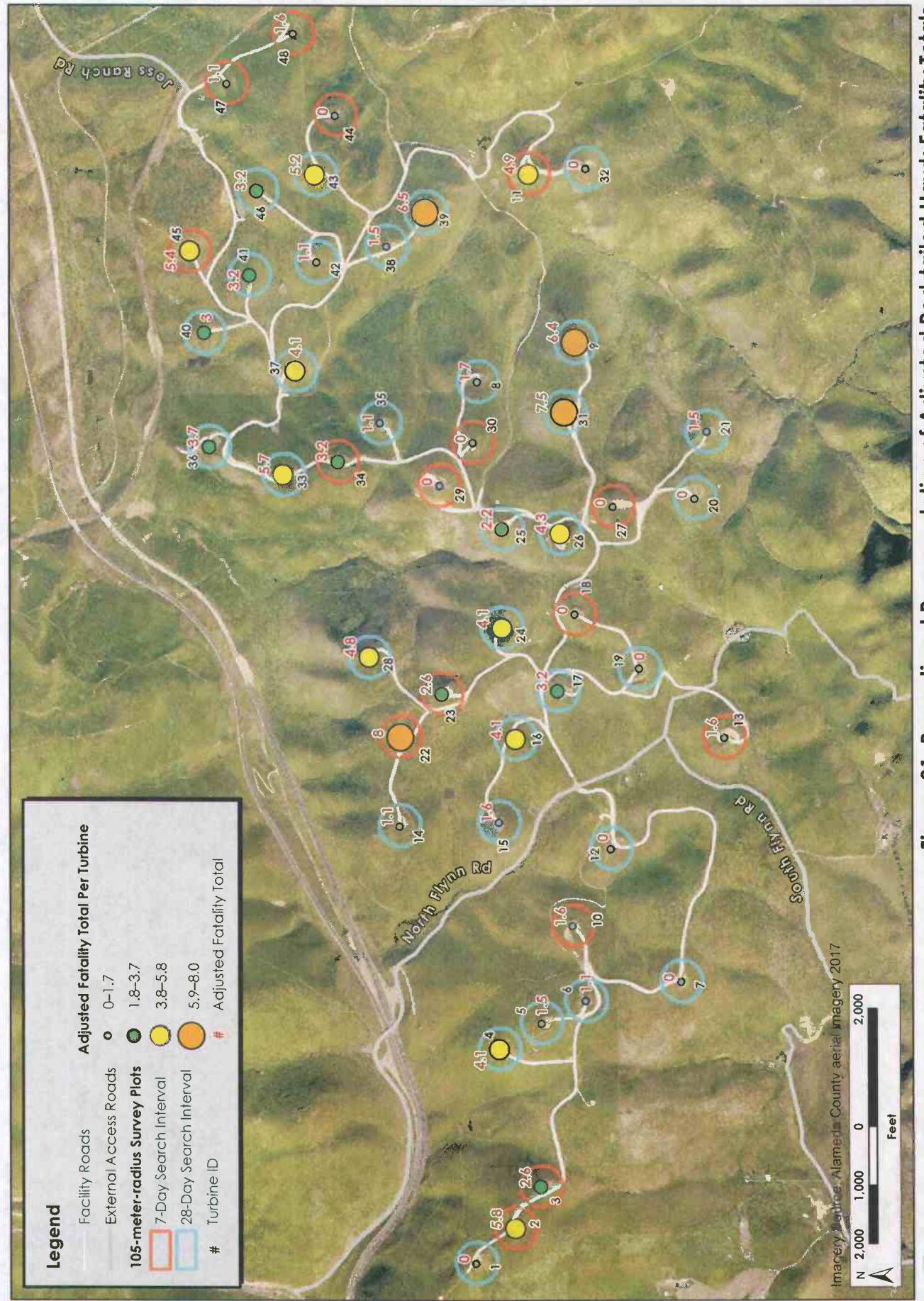
**Figure 20. Proportional Representation of Adjusted Red-tailed Hawk Fatality Totals Across the Facility in Year 2**

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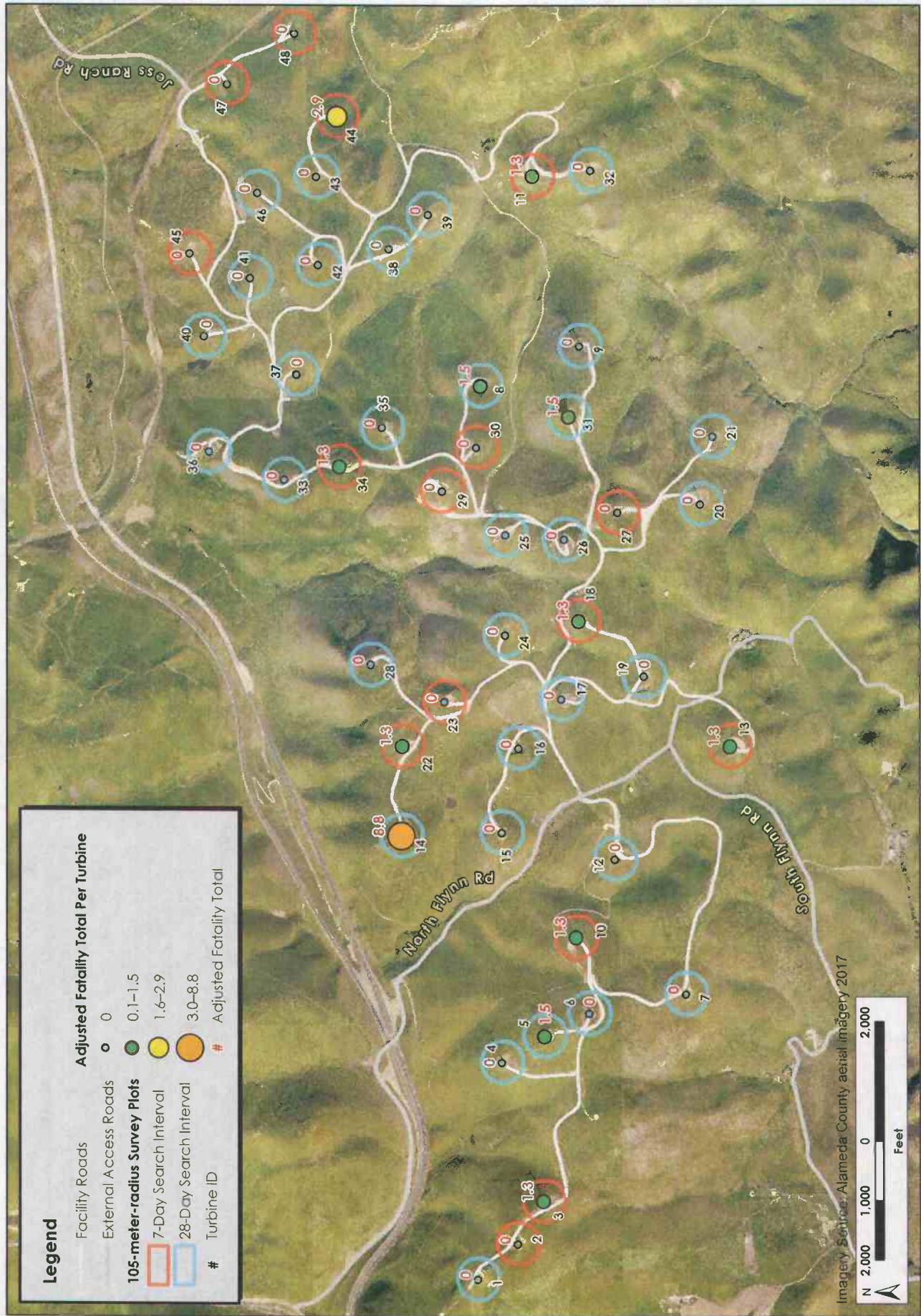
**Figure 21. Proportional Representation of Adjusted Red-tailed Hawk Fatality Totals Across the Facility for Years 1 and 2 Combined**

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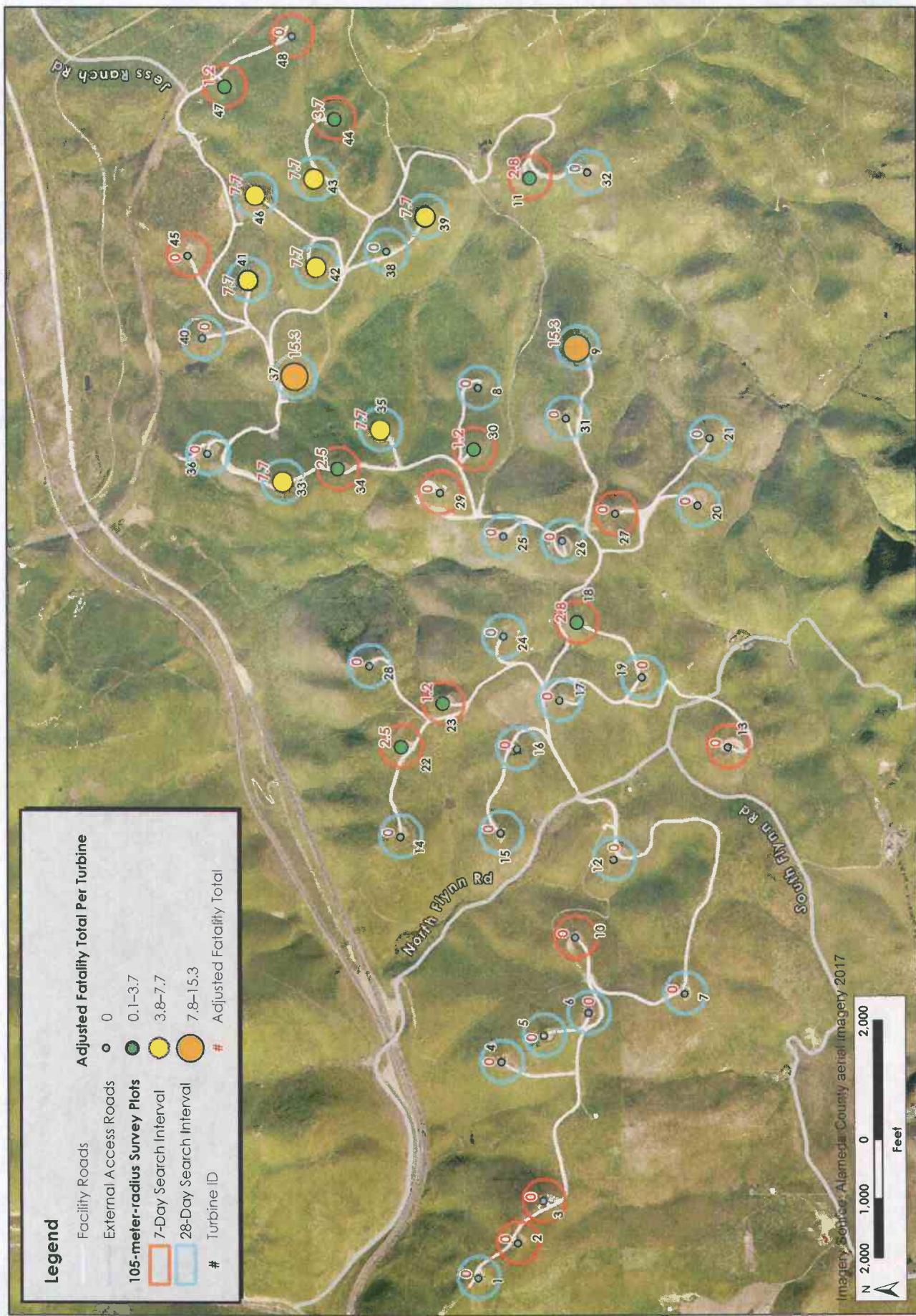




**Figure 22. Proportional Representation of Adjusted American Kestrel Fatality Totals Across the Facility for Years 1 and 2 Combined**

Golden Hills Postconstruction Fatality Monitoring: Year 2 (3926-01)  
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**Figure 23. Proportional Representation of Adjusted Burrowing Owl Fatality Totals Across the Facility for Years 1 and 2 Combined**  
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## Section 4.0 Discussion

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### 4.1 Composition of Fatality Incidents

The two species of bats that accounted for most of the bat fatalities documented during the study, hoary bat and Mexican free-tailed bat, are both open aerial foragers that make fall migratory movements. Hoary bats are solitary and migrate long distances, possibly more than 2,000 km (Cryan et al. 2004), whereas the Mexican free-tailed bats found in the APWRA are considered mostly non-migratory (Benson 1947, Cockrum 1969), but typically make seasonal movements within California, such as between the Central Valley where they raise young in large colonies and central coastal California where large numbers overwinter. Mexican free-tailed bats are abundant and have not been categorized as at risk; however, the available evidence suggests that hoary bat populations are declining, possibly because of the impacts of wind-energy mortality (Frick et al. 2017).

The western red bat's range in California is limited, with maternity areas generally restricted to lowland, old-growth riparian woodlands (Pierson and Rainey 1998). This suggests that their populations in the region are much smaller than those of the two predominant species represented as fatalities in the APWRA. Because more than 90% of the old-growth riparian forests of the Central Valley have been lost or significantly degraded, California populations of this species are considered at risk (Pierson et al. 2000).

California myotis were previously detected acoustically in the APWRA (ICF International 2016), but never before as a fatality. Unlike the open aerial foraging hoary and Mexican free-tailed bats, California myotis typically forage close to foliage, do not migrate, and therefore are less likely to collide with turbines. The greater ability of detection dogs to find even small pieces of bats compared to humans also contributed to this novel discovery.

The 9-year APWRA-wide monitoring study revealed only two house wren and two white-throated swift fatalities (ICF International 2016). Our discovery of 16 white-throated swift and 27 house wren fatalities in Year 1 was unprecedented. The 2017 summer wave of house wren fatalities was not repeated in Year 2, however, suggesting that this occurrence represented a unique conjunction of high productivity and novel movement activity for this species in 2017. In contrast, the unadjusted number of white-throated swift fatalities was even higher in Year 2 (19 confirmed fatalities) and the adjusted fatality rate for the species was 28% higher in Year 2 than in Year 1. It is also noteworthy that the long-term APWRA-wide study revealed no confirmed fatalities of Vaux's swift, a California species of special concern, whereas we documented three fatalities of this species in both monitoring years.

As has been shown for bats (Barclay et al. 2007, Cryan and Barclay 2009), larger turbines that extend farther up into the airspace may represent a greater problem for high-flying, aerial-foraging swifts than the smaller, older generation turbines that were once prevalent in the APWRA. However, other relevant post-repowering survey efforts revealed no fatalities of either swift species (Western EcoSystems Technology 2006, Insignia Environmental 2012, Brown et al. 2016), suggesting that other spatiotemporal or annual climatic factors, as well as the higher search efficiency of detection dogs, influenced these outcomes. Another possibility for white-throated swifts concerns the fact that winter, the period during which we documented the most fatalities in both monitoring years, is a time when this species exploits communal roosting to stay warm at night.

(Bartholomew et al. 1957, Ryan 1996). It is possible that the larger new-generation turbine towers attract this species during winter as possible roost sites.

Regarding other species that we documented for the first time as fatalities in Year 2, rufous hummingbird and western kingbird were not previously represented among the fatalities documented during the Vasco Winds, Buena Vista, Diablo Winds, and APWRA-wide studies, and tree swallow was previously confirmed as a fatality only during the Vasco Winds study.

## 4.2 Carcass Detectability

The Year 2 results continued to emphasize the high value of using scent-detection dogs to survey for bats, with carcass detectability sustained above 60% on the 7-day plots in both monitoring years. The detection dogs also continued to perform well in detecting all types of birds, but with the human surveyors exhibiting similar detection rates for large birds. To provide a basis for comparing carcass detectability in Years 1 and 2, we multiplied the Year 1 non-modeled estimates of searcher efficiency and modeled estimates of carcass persistence for 7-day and 28-day surveys (H. T. Harvey & Associates 2018a) to generate values resembling the non-modeled Big D detectability estimates for Year 2. Acknowledging that such translations may be subject to unknown bias (Brown et al. 2016), this comparison suggested that, for 7-day plots surveyed by detection dogs, annual carcass detectability was similar in Years 1 and 2 for bats (61–63%), medium birds (82–84%), and large birds (95–97%); however, for small birds it was considerably lower in Year 1 (36%) than in Year 2 (60%). In contrast, the comparison of Year 1 and Year 2 values for the 28-day plots clearly reflected the expected, significantly lower efficiency of humans compared to dogs in searching for bats (Arnett 2006, Paula et al. 2011, Reyes et al. 2016), as well as for small birds (27–33% detectability for dogs in Year 1 versus 0–4% detectability for humans in Year 2). However, the stark difference also might have reflected the influence of a higher scavenging rate for bats and small birds in Year 2. A similar combination of factors probably contributed to moderately lower carcass detectability for medium birds in Year 2 (46%) compared to Year 1 (67%). In contrast, for large birds the Year 2 carcass detectability estimate for the 28-day plots surveyed by humans (89%) was higher than for the 28-day plots surveyed by detection dogs in Year 1 (80%). This result is consistent with search efficiency for large birds being similar for dogs and humans, combined with a higher carcass removal rate associated with the longer 28-day search interval.

Brown et al. (2016) provided comparative estimates of Big D carcass detectability for human searchers who conducted 28-day interval surveys during the Vasco Winds study. Across the 3-year study, carcass detectability for those surveys averaged 0% for bats, 10% for small birds (defined as <280 g), 56% for large birds (defined as  $\geq 280$  g and  $<2,048$  g), and 80% for extra-large birds ( $\geq 2,048$  g). Although based on different size classification standards and likely encompassing interannual and site-specific variation in scavenger activity, the Year 2 estimates for our study were similar to the Vasco Winds study: 0% for bats, 4% for small birds (defined as  $\leq 100$  g), 46% for medium birds (101–500 g), and 89% for large birds ( $>500$  g).

During Year 1, our field biologists noted that partially consumed vole and gopher carcasses littered the survey plots during much of the year, suggesting that small mammals were abundant and predators/scavengers were well-sated. Such evidence was not apparent in Year 2, which featured the return of a dry winter/spring and

reduced primary productivity compared to the previous very wet winter/spring. These findings suggest that the carcass scavenging rate was probably higher during Year 2 and likely reduced detectability to some unknown degree. However, the comparative Big D-like Year 1 and Big D Year 2 detectability estimates for detection dogs were markedly similar, except for small birds for which the Year 2 detectability rate was much higher than in Year 1. The interplay of handler/dog-team dynamics and variable habitat cover, scavenger communities, and carcass degradation may have balanced out to similar overall detectability in both years for most groups, whereas no explanation for the substantial increase in detectability of small birds in Year 2 is readily apparent.

## 4.3 Fatality Estimates

### 4.3.1 7-Day Versus 28-Day Interval Surveys

The Year 2 adjusted fatality estimates for 7-day and 28-day surveys continued to emphasize that a relying on a 28-day search interval appears to underestimate fatality rates for small birds and bats (Brown et al. 2016, Smallwood and Neher 2016, H. T. Harvey & Associates 2018a). This proved to be the case in Year 1 with dog teams searching all plots, as well as in Year 2 with dog teams searching the 7-day plots and humans searching the 28-day plots. Moreover, the estimated rates and proportional differences between the 7-day and 28-day estimates for small birds were substantially similar in both years, despite the differences in surveyors, bias trial approaches, and fatality estimation methods (Year 1: 7-day, 11.9 fatalities per turbine; 28-day, 6.5 fatalities per turbine. Year 2: 7-day, 12.0 fatalities per turbine; 28-day, 8.0 fatalities per turbine).

In contrast to the results for small birds and bats, the two annual datasets suggested different patterns in comparing the 7-day and 28-day results for other bird groups. The Year 1 estimates indicated at least slightly lower adjusted fatality rates on 28-day plots than on 7-day plots for all bird groups, whereas the Year 2 results indicated higher fatality rates on the 28-day plots for medium and large birds and all raptors combined. This suggests that the Big D carcass detectability and fatality estimation approach might generally have performed better in rendering the adjusted 7-day and 28-day estimates more comparable. The cautionary note we offer here is that it appeared the model derived to predict carcass detectability based on the average mass of relevant species might have overinflated the adjusted fatality estimates for burrowing owls and possibly American kestrels on 28-day plots.

For burrowing owls, in particular, although the number of documented fatalities increased markedly from 2 in Year 1 to 25 in Year 2, the nearly eight-fold inflation of the documented fatality total on 28-day plots from 11 owls to an estimated total of 84 owls appeared excessive. We suspect this may have resulted from a 28-day mass prediction curve that poorly represented the transition from medium to smaller birds, because of limited sample representation in the detectability trials (Brown et al. 2016). It is also possible, however, that models restricted to predicting detectability based solely on average carcass mass may miss the mark for some species with distinct characteristics, such as burrowing owls. Despite the fact that most of the burrowing owl fatalities found in Year 2 were feather spots (56%) or other scavenged remnants (28%), these carcass remnants were often readily detectable around visible burrows with non-vegetated aprons and along exposed erosion-control wattles. Accordingly, carcass detectability for this species was probably higher than the model predicted for species of

that general size range. Finding most burrowing fatalities around burrows and erosion-control wattles also suggests that most incidents resulted from predation rather than turbine strikes.

### **4.3.2 Interannual Comparisons**

Despite marked differences in the carcass-detectability trial and fatality estimation approaches used in the two monitoring years, the facility-wide adjusted fatality estimates we independently generated for Years 1 and 2 for bats were similar in magnitude, although the estimated precision of the Year 2 estimates was notably higher (Table 13). The comparative estimates suggested a possible, slight uptick in fatalities of Mexican free-tailed bats, whereas the Year 1 and 2 estimates for hoary bats were essentially identical. Note, however, that this interannual similarity reflects the fact that the dividing line between the two annual sampling periods was mid-September 2017, such that both monitoring years encompassed a large proportion of the high activity peak that occurred that fall (Figure 8). Once we compile the complete picture for fall 2018, we will be able to compare the patterns for two complete annual cycles and should be able determine if the low start to the 2018 fall season translated to low overall season of bat fatality activity or simply reflected a delayed activity pattern.

The adjusted fatality estimates for all small birds and for all nonraptors also were markedly similar in Years 1 and 2, despite indications of substantially different overall species assemblages. Greater interannual differences and variation were evident for all large birds, all raptors, the four focal raptor species, and the four nonraptor species with sufficient fatalities in one or both years to warrant specific attention (Table 13). The comparative results emphasized that in Year 2 fatality rates increased slightly for golden eagles and markedly for American kestrels and burrowing owls, but declined by 60% for red-tailed hawks. Relatively high regional productivity following the wet winter/spring in 2016/2017 might have contributed to the increases in Year 2, but the reason why red-tailed hawks exhibited the opposite pattern is unknown. Year 2 increases in fatalities of horned larks and white-throated swifts also might have reflected the influence of improved regional productivity following abatement of the 2012–2016 regional drought, but why the estimated fatality total for western meadowlarks declined by 50% in Year 2 is uncertain (Table 13). It is also notable that the temporal distributions indicated that the Year 2 surge in kestrel fatalities involved exclusively late-summer/fall transients and wintering birds, whereas the Year 2 surge in burrowing owl fatalities reflected activity throughout the year. In other nearby locations where burrowing owls are monitored annually (Santa Clara Valley), the number of breeding pairs has been declining, but the average productivity of active pairs increased in 2018 and markedly reversed a strong declining trend that occurred from 2012 through 2016 (Santa Clara Valley Habitat Authority 2018).

### **4.3.3 Comparisons With Previous APWRA Studies**

Compared to fatality estimates generated by other APWRA repowering projects (Western EcoSystems Technology 2006, Insignia Environmental 2012, Brown et al. 2014, and as represented in Alameda County Community Development Agency 2014), the adjusted per MW fatality estimates we produced using the Huso DS729 estimator for Year 1 ranked highest among the available estimates for all raptors, golden eagles, and red-tailed hawks; above average for bats; and well below average for American kestrels and burrowing owls (Table 14). Compared to the pre-repowering bird years of the APWRA-wide avian fatality study, our Year 1 Huso DS729 estimates were higher for golden eagles and red-tailed hawks, lower for all raptors combined, and much lower for American kestrels and burrowing owls (Table 14). In comparison, the Year 2 Big D estimates

remained roughly the same for bats, increased further and remained among the highest for golden eagles and all raptors combined, dropped to a moderate level for red-tailed hawks, and increased above both the previous pre- and post-repower estimates for American kestrels and especially burrowing owls (Table 14).

It is also important to note that the unadjusted and adjusted fatality rates for golden eagles and red-tailed hawks were essentially the same in Year 2, whereas the bias trial and estimation approaches used in Year 1 inflated the estimated values by notable amounts compared to the unadjusted fatality counts (H. T. Harvey & Associates 2018a). Conversely, as alluded to previously, the carcass detectability–mass prediction model may have unreasonably inflated the adjusted Year 2 estimates for American kestrels and especially burrowing owls. In comparison, the unadjusted fatality rates for the two species in Year 2 were 0.10 and 0.27 fatalities per MW, respectively, which ranked low and moderate compared to the other adjusted repower estimates (Table 14). In addition, an adjusted estimate of 99 burrowing owl fatalities at one project site would appear to represent an unreasonably high number compared to the long-term estimate of approximately 600 fatalities per year APWRA-wide (Smallwood et al. 2013).

**Table 14. Comparison of Adjusted Facility-Wide Fatality Estimates (95% CIs) for Bats and Raptors (Fatalities per MW per Year) from This Study and Other Recent Monitoring Studies in the Altamont Pass Wind Resource Area**

Study <sup>1</sup>	Bats	All Raptors	Golden Eagles	Red-tailed Hawks	American Kestrels	Burrowing Owls
This Project	5.45	1.30	0.13	0.91	0.06	0.05
Year 1 <sup>2</sup>	(3.70–9.75)	(0.95–1.77)	(0.04–0.23)	(0.62–1.28)	(0.01–0.13)	(0.01–0.12)
This Project	5.82	2.17	0.17	0.37	0.27	1.10
Year 2 <sup>2</sup>	(3.79–7.84)	(1.19–3.14)	(0.00–0.35)	(0.16–0.58)	(0.19–0.35)	(0.92–1.28)
Vasco Winds	6.22	0.79	0.04	0.44	0.21	0.05
3-year average <sup>3</sup>	(na)	(na)	(0.00–0.10)	(0.00–0.92)	(0.00–0.45)	(0.01–0.13)
Buena Vista	0.48–1.08	0.31–0.43	0.04	0.10	0.15	0.00
3-year average <sup>3</sup>	(na)	(na)	(0.01–0.07)	(0.05–0.15)	(0.06–0.24)	(0.00–0.00)
Diablo Winds	0.78 <sup>4</sup>	1.21	0.02	0.28	0.07	0.58
5-year average <sup>3</sup>	(na)	(na)	(0.02–0.02)	(0.24–0.32)	(0.05–0.09)	(0.39–0.77)
APWRA-wide Study	0.12–0.26	2.43 <sup>5</sup>	0.09	0.40	0.56	0.67
Pre-repower 2005–2013 average <sup>3</sup>	(na)	(na)	(0.07–0.10)	(0.33–0.47)	(0.37–0.74)	(0.44–0.90)

Notes: Data sources for other projects: Insignia Environmental 2012, Brown et al. 2014, ICF International 2016, and Alameda County Community Development Agency 2014.

<sup>1</sup> Values derived from application of Huso DS729 estimator to integrated 7-day and 28-day survey data.

<sup>2</sup> Values derived from application of the Big D integrated detection trials and fatality estimation approach.

<sup>3</sup> Values accompanied by confidence intervals (95% CI) are taken from ICF International (2016: Table 3-18). Values for bats and all raptors are derived from other sources, with no relevant CIs provided (na = not available).

<sup>4</sup> Based on data from 2005–2007 (Smallwood and Karas 2009).

<sup>5</sup> For bird years 2005–2011 only (Alameda County Community Development Agency 2014).

For the four focal raptor species, the primary conclusions from the first two monitoring years are a higher golden eagle fatality rate during both years compared to other recent APWRA studies, and high interannual variability for the other three species. Adding a third year of data to the mix, with Years 2 and 3 based on the

same survey, bias trial, and estimation methods, plus having complimentary information generated by the Golden Hills North project, should help determine whether these conclusions remain consistent throughout this study and for the Golden Hills area in general.

Our Year 1 and Year 2 per MW estimates for all raptors combined were higher than for the other three repowering projects, but lower than the pre-repowering average from the APWRA-wide avian monitoring study (Table 14). The higher rates compared to the other repowering studies may partly reflect the influence of variable estimation methods, but probably primarily reflect substantial interannual variation in climate and landscape conditions and the attendant influence on wildlife populations, as well as the consequences of evaluating project impacts based on short-term studies that may inadvertently represent atypical conditions (ICF International 2016). For example, the Vasco Winds study occurred during the height of the recent drought in 2013–2014, whereas the first 2 years of this study occurred after that 4-year drought abated and the region experienced a return to better (winter 2015–2016) and unusually high (winter/spring 2016–2017) rainfall conditions. This climatic shift likely contributed to expanded populations of resident and seasonally resident smaller breeding birds that are able to quickly respond to improved breeding conditions. This factor probably contributed to overall high species diversity among the small-bird fatalities in Year 1, and higher than average fatality rates for common species such as horned larks and western meadowlarks, as well as an unexpectedly high number of house wrens. That this pattern did not extend strongly through Year 2 likely reflected the return to moderate drought conditions during winter/spring 2017/2018.

It is also important to note that population responses of species such as the larger raptors often lag behind those of prey species and smaller birds, which may have contributed to the increase in golden eagle fatalities in Year 2. Annual monitoring across central California confirmed that golden eagle reproductive success and productivity generally dropped markedly during the 4-year drought, began to resurge in 2016, declined again during the very wet and “overgrown” 2017 breeding season, and then surged again in 2018 (H. T. Harvey & Associates 2016, 2018b; Kolar and Wiens 2017; Wiens and Kolar 2016; Wiens et al. 2015, 2018). Increases in burrowing owl abundance also may have lagged until 2018, because excessive growth of annual grasses and other vegetation that is not grazed down by cattle generally precludes habitat suitability for both ground squirrels and burrowing owls (Smallwood et al. 2013).

#### **4.3.4 Bat Fatalities and Repowering**

Of the wind-energy areas in North America, the western states have had some of the lowest bat fatality rates (Arnett et al. 2008). Arnett and Baerwald (2013) suggested that the Great Basin and arid regions of the west may experience low bat fatality rates, because either foraging and roosting areas are scarce or no migratory pathways exist at these western sites. However, Arnett et al. (2008) pointed out that Midwestern wind-energy regions also have few potential roost trees, few obvious foraging opportunities, and no obvious migratory pathways, yet some Midwestern wind-energy regions have relatively high fatality rates. Thus, they suggested that the low fatality rates at some western sites may reflect biased reporting; i.e., absence of evidence rather than evidence of absence (Huso and Dalthorp 2014).

Although most previous studies suggested that bat fatalities were rare in the APWRA (e.g., ICF International 2016), this Project represents the first time that scent-detection dogs have been used for an extended period to

conduct fatality searches in the area, and shorter 7-day search intervals also were only recently implemented as a standard practice in the APWRA (Brown et al. 2016). The combination clearly resulted in our detecting far greater numbers of bat fatalities than previously reported in the APWRA; however, similar estimates of per MW fatality rates in this study and the post-repowering Vasco Winds study suggest that repowering with larger, taller turbines also may have contributed to a higher fatality rate for bats. Barclay et al. (2007) demonstrated that taller turbines kill bats at higher rates, and Cryan and Barclay (2009) predicted that, although taller turbines might reduce bird fatalities, they are likely to increase bat fatality rates.

Johnston et al. (2013) found that in the Montezuma Hills WRA, approximately 50% of the bat fatalities disappeared within the first 24 hours after placement (at least from the perspective of human searchers), and human searchers were unlikely to find these bat fatalities other than during the first search attempt. There is a higher probability that a scent-detection dog will eventually recover at least some evidence of each bat fatality before they fully blend into the soil (e.g., see Henrich and Dieter 2017). Especially during the first several weeks of surveys in 2016, when the fatality finds included many old carcasses deposited before the Project began, bat fatalities detected by the detection dogs often included small bits and pieces left behind after scavenging by insects and rodents. In many such cases, it was necessary for the dog to literally touch a carcass fragment with its nose before the handler could detect it. Additional research on the mechanisms by which bat carcasses are reduced to small pieces would help confirm our hypothesis that most bat fatalities go unnoticed by humans after the carcass has been degraded by insect and small mammal scavenging, even after repeated searches. In comparison, small-bird carcasses may remain visually noticeable as feather spots for longer after they have been reduced by insect and small mammal scavenging, but may not remain as detectable for dogs, which cannot smell degraded feathers that no longer retain remnant tissue or body oils.

These factors also confound assessing differences in pre- and post-repowering fatality rates within the APWRA, which was already a challenging task due to a variety of factors (ICF International 2016). Adding to the mix the much higher searcher efficiency of detection dogs for bats (as well as at least smaller birds) further confounds achieving meaningful comparisons. The first-opportunity detection-dog search efficiency for bats during Year 1 of the Project was more than four times higher than for the human searchers at the Vasco Winds project. However, even this level of difference in search efficiency cannot fully account for the fact that previously only 23 bats were discovered during 9 years of surveys across the APWRA (ICF International 2016), whereas we have documented more than 300 bat fatalities in just 2 years. Therefore, the use of detection dogs cannot fully explain the difference, but teasing apart the comparative influences of detection dogs, shorter search intervals, and taller turbines is a challenge that extends beyond the domain of this monitoring Project.

The APWRA Repowering Programmatic Environmental Impact Report (Alameda County Community Development Agency 2014) focuses on an annual rate of 1.68 bat fatalities per MW as a threshold value of interest for assessing the impact of the Project on bats, suggesting that the value represents the first-year of monitoring results from the Vasco Winds repowering project (Brown et al. 2013:39). However, in fact that value represents what was considered a national average rate for bat fatalities at the time, whereas the actual values from the Vasco Winds project were in the same ballpark as the estimates we generated for the first 2 years of this Project (Table 14; Brown et al. 2016). For these reasons, we do not think there is any solid basis for evaluating the Project's impact on bats compared to what might have been the case during the pre-

repowering years (i.e., when smaller, older turbines were in use). Moreover, additional years of post-repowering data from different APWRA projects will be necessary before a confident assessment of the patterns and magnitudes of impacts on bats can be confidently assessed.

#### **4.4 Spatial Patterns and Potential Fatality Hot Spots**

Similar to Year 1, the detection dogs continued to find multiple bat fatalities at nearly all turbines they searched in Year 2 (Figure 12); however, the lack of effective comparative data for the 28-day plots precluded discerning overall spatial patterns across the facility in Year 2 and comparing data from the two monitoring years to identify potential multi-year fatality hot spots for bats. Once we accumulate 7-day-interval survey data with dogs for all turbines after Year 3, we should be able to render an integrated assessment of potential bat hot spots based on comparable data for all turbines. Interannual differences in fatality rates may confound such a comparison, given that no plots will have been surveyed at weekly intervals with dogs for more than 1 year; however, the marked similarity in the adjusted estimates for bats from Years 1 and 2 suggested that may not be a major issue.

The hot spot assessments for birds based on 2 years of information generally emphasized that few turbines appear to represent consistently high fatality concentration points on an interannual basis. For nonraptors as a group, the northeast sector generally appears to produce a relative abundance of fatalities across at least six turbines, but after 2 years only two turbines in the west-central sector (WTGs 13 and 16) stood out as at least moderate hot spots in both years, while WTG 5 stood out as the only major hot spot, but based solely on a Year 1 accumulation (Figures 14 and 15). For raptors as a group, three turbines arrayed in the east- and south-central sector (WTGs 9, 37, and 39) and WTG 14 on the north-central edge of the facility currently represent multi-year fatality accumulations of note. For golden eagles, if the pattern continues in Year 3, WTGs 11 and 14 may be confirmed as true fatality hot spots for that species (Figure 19). Similarly, although greater variability in pattern has been the rule thus far for red-tailed hawks, continued fatality accumulations at WTGs 22 and 39 in Year 3 may confirm those sites as true fatality hot spots for that species (Figure 21). In contrast, with little to compare between the 2 years, evaluating the potential for interannual fatality hot spots is not yet practical for American kestrels and burrowing owls; however, it may be noteworthy that the primary fatality hotspot for kestrels in Year 2 was WTG 14 (Figure 22), which also represents a potential hot spot for golden eagles.

## Section 5.0 References

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- Accuweather. 2018. Daily temperatures, rainfall, and averages for January 2017 for Livermore, CA. <<https://www.accuweather.com/en/us/livermore-ca/94550/january-weather/337125?monyr=1/1/2017&view=table>>. Accessed October 2018.
- Alameda County Community Development Agency. 2014. Altamont Pass Wind Resource Area Repowering Final Program Environmental Impact Report. State Clearinghouse #2010082063. Hayward, California.
- Altamont Monitoring Team. 2007. Altamont Pass Wind Resource Area Bird and Bat Mortality Monitoring Protocols. M1 – July 11, 2007.
- Arnett, E. B. 2006. A preliminary evaluation on the use of dogs to recover bat fatalities at wind energy facilities. *Wildlife Society Bulletin* 34:1440–1445.
- Arnett, E. B., and E. F. Baerwald. 2013. Impacts of wind energy development on bats: implications for conservation. Pages 435–456 in R. A. Adams, S. C. Peterson, editors, *Bat Evolution, Ecology, and Conservation*. Springer, New York, New York.
- Arnett, E. B., K. Brown, W. P. Erickson, J. Fiedler, T. H. Henry, G. D. Johnson, J. Kerns, R. R. Kolford, C. P. Nicholson, T. O'Connell, M. Piorkowski, and R. Tankersley, Jr. 2008. Patterns of fatality of bats at wind energy facilities in North America. *Journal of Wildlife Management* 72:61–78.
- Arnett, E. B. 2006. A preliminary evaluation on the use of dogs to recover bat fatalities at wind energy facilities. *Wildlife Society Bulletin* 34:1440–1445.
- Arnett, E. B., M. Schirmacher, M. M. P. Huso, and J. P. Hayes. 2009. Effectiveness of Changing Wind Turbine Cut-in Speed to Reduce Bat Fatalities at Wind Facilities, 2008 Annual Report. Prepared for the Bats and Wind Energy Cooperative and Pennsylvania Game Commission.
- Barclay, R. M. R., E. F. Baerwald, and J. C. Gruver. 2007. Variation in bat and bird fatalities at wind energy facilities: assessing the effects of rotor size and tower height. *Canadian Journal of Zoology*. 85:381–387.
- Bartholomew, G. A., T. R. Howell, and T. J. Cade. 1957. Torpidity in the White-throated Swift, Anna Hummingbird, and Poor-will. *Condor* 59:145–155.
- Benson, S. B. 1947. Comments on migration and hibernation in *Tadarida mexicana*. *Journal of Mammalogy* 28:407–408.
- Bernardino, J., R. Bispo, H. Costa, and M. Mascarenhas. 2013. Estimating bird and bat fatality at wind farms: a practical overview of estimators, their assumptions and limitations. *New Zealand Journal of Zoology* 40:63–74.
- Brown, K., K. S. Smallwood, B. Karas, and J. M. Szewczak. 2016. Final Report 2012–2015, Avian and Bat Monitoring Project, Vasco Winds, LLC. Prepared by Ventas Environmental Solutions, Portland, Oregon. Prepared for NextEra Energy Resources, Livermore, California.

- California Energy Commission and California Department of Fish and Game. 2007. California Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development. Sacramento, California.
- CH2M Hill. 2016. Golden Hills Wind Energy Facility Repowering Project Avian Protection Plan. Sacramento, California. Prepared for Golden Hills Wind, LLC, Juno Beach, Florida.
- Cockrum, E. L. 1969. Migration in the guano bat, *Tadarida brasiliensis*. University of Kansas Museum of Natural History, Miscellaneous Publications 51:303–336.
- Cryan, P. M., and R. M. R. Barclay. 2009. Causes of bat fatalities at wind turbines: hypotheses and predictions. *Journal of Mammalogy* 90:1330–1340.
- Cryan, P. M., M. A. Bogan, R. O. Rye, G. P. Landis, and C. L. Kester. 2004. Stable hydrogen isotope analysis of bat hair as evidence for seasonal molt and long-distance migration. *Journal of Mammalogy* 85:995–1001.
- East County Board of Zoning Adjustments. 2014. Conditional Use Permit PLN2014-00032. Resolution Number Z-14-40. County of Alameda, Hayward, California.
- Erickson, W. P., G. D. Johnson, D. Strickland, and K. Kronner. 2000. Avian and bat mortality associated with the Vansycle Wind Project, Umatilla County, Oregon: 1999 Study Year. Western EcoSystem Technology, Inc., Cheyenne, Wyoming.
- Frick, W. F., E. F. Baerwald, J. F. Pollock, R. M. R. Barclay, J. A. Szymanski, T. J. Weller, and A. L. Russell, S.C. Loeb, R.A. Medellin, and L.P. McGuire. 2017. Fatalities at wind turbines may threaten population viability of a migratory bat. *Biological Conservation*. 209: 172–177.
- Hale, A. 2010. Estimating bird and bat mortality at a wind energy facility in north-central Texas. Oral presentation at the National Wind Coordinating Collaborative, Wind Wildlife Research Meeting VIII, October 19–21, 2010, Lakewood, Colorado.
- Henrich, M. T., and W. M. Dieter. 2017. Scavenging of small bird carrion in southwestern Germany by beetles. *Ornithology* 158:287.
- Horvitz, D. G., and D. J. Thompson. 1952. A Generalization of sampling without replacement from a finite universe. *Journal of American Statistical Association* 47:663–685.
- H. T. Harvey & Associates. 2013. NextEra Montezuma II Wind Energy Center Postconstruction Monitoring Report: Year 1. Los Gatos, California. Prepared for NextEra Energy Montezuma II Wind, LLC, Juno Beach, Florida.
- H. T. Harvey & Associates 2016. Golden Eagle Nest Surveys Around California Valley Solar Ranch 2012–2016: Final Report. San Luis Obispo, California. Prepared for HPR II, LLC, Santa Margarita, California.
- H. T. Harvey & Associates. 2018a. Golden Hills Wind Energy Center Postconstruction Fatality Monitoring Report: Year 1. Los Gatos, California. Prepared for Golden Hills Wind, LLC, Livermore, California.
- H. T. Harvey & Associates. 2018b. Los Vaqueros Reservoir Project Annual Golden Eagle Monitoring Report 2018. Los Gatos, California. Prepared for the Contra Costa Water District, Concord, California.

- Huso, M. M. P. 2011. An estimator of wildlife fatality from observed carcasses. *Environmetrics* 22:318–329.
- Huso, M. M. P., and D. H. Dalthorp. 2014. Accounting for unsearched areas in estimating wind turbine-caused fatality. *Journal of Wildlife Management* 78:347–358.
- Huso, M. M. P., D. Dalthorp, T. J. Miller, and D. Burns. 2016. Wind energy development: methods to assess bird and bat fatality rates post-construction. *Human-Wildlife Interactions* 10:62–70.
- Huso, M., N. Som, and L. Ladd. 2012. Fatality estimator user's guide. U. S. Geological Survey Data Series 729. <<http://pubs.usgs.gov/ds/729>>. Accessed November 2017.
- ICF International. 2016. Altamont Pass Wind Resource Area Bird Fatality Study, Monitoring Years 2005–2013. Sacramento, California. Prepared for Alameda County Community Development Agency, Hayward, California.
- Insignia Environmental. 2012. Final Report for the Buena Vista Avian and Bat Monitoring Project February 2008 to January 2011. Palo Alto, California. Prepared for Contra Costa County California, Martinez, California.
- Johnson, G. D., W. P. Erickson, M. D. Strickland, M. F. Shepherd, and D. A. Shepherd. 2000. Avian Monitoring Studies at the Buffalo Ridge, Minnesota Wind Resource Area: Results of a 4-Year Study. Western EcoSystems Technology, Inc., Minneapolis, Minnesota.
- Johnson, G. D., W. P. Erickson, M. D. Strickland, M. F. Shepherd, D. A. Shepherd, and S. A. Sarappo. 2003. Mortality of bats at a large-scale wind power development at Buffalo Ridge, Minnesota. *American Midland Naturalist* 150:332–342.
- Johnston, D. S., J. A. Howell, S. B. Terrill, N. Thorngate, J. Castle, J. P. Smith, T. J. Mabee, J. H. Plissner, N. A. Schwab, P. M. Sanzenbacher, and C. M. Grinnell. 2013. Bird and bat movement patterns and mortality at the Montezuma Hills Wind Resource Area. CEC-500-004-2010. California Energy Commission, Public Interest Energy Research (PIER) Program, Sacramento, California.
- Kerns, J., W. P. Erickson, and E. B. Arnett. 2005. Bat and bird fatality at wind energy facilities in Pennsylvania and West Virginia. Pages 24–95 in E. B. Arnett, technical editor, Relationships between Bats and Wind Turbines in Pennsylvania and West Virginia: An Assessment of Bat Fatality Search Protocols, Patterns of Fatality, and Behavioral Interactions with Wind Turbines. Final report to the Bats and Wind Energy Cooperative, Bat Conservation International, Austin, Texas.
- Kolar, P. S., and J. D. Wiens. 2017. Distribution, Nesting Activities, and Age-Class of Territorial Pairs of Golden Eagles at the Altamont Pass Wind Resource Area, California, 2014–16. Open-File Report 2017-1035. U.S. Geological Survey, Reston, Virginia.
- Korner-Nievergelt, F., P. Korner-Nievergelt, O. Behr, I. Niermann, R. Brinkmann, and B. Hellriegel. 2011. A new method to determine bird and bat fatality at wind energy turbines from carcass searches. *Wildlife Biology* 17:350–363.
- Morrison, M. 2002. Searcher bias and scavenging rates in bird/wind energy studies. NREL/SR-500-30876. National Renewable Energy Laboratory, Golden, Colorado.

- National Drought Mitigation Center. 2018. North American Drought Monitor: Map Archive. University of Nebraska-Lincoln, Lincoln, Nebraska. <<https://droughtmonitor.unl.edu/Data/Timeseries.aspx>>. Accessed September 2018.
- National Oceanic and Atmospheric Association. 2018. National Weather Service Forecast Office: San Francisco Bay Area/Monterey: Livermore Airport. San Francisco Bay Area Weather Forecast Office, Monterey, California. <<https://w2.weather.gov/climate/index.php?wfo=mtr>>. Accessed September 2018.
- Paula, J., M. C. Leal, M. J. Silva, R. Mascarenhas, H. Costa, and M. Mascarenhas. 2011. Dogs as a tool to improve bird-strike mortality estimates at wind farms. *Journal for Nature Conservation* 19:202–208.
- Pierson, E. D., and W. E. Rainey. 1998. Red bat, *Lasiurus blossevillii*. Pages 47–49 in B. C. Bolster, editor, *Terrestrial Mammal Species of Special Concern in California*. California Department of Fish and Game, Wildlife Branch, Sacramento, California.
- Pierson, E. D., W. E. Rainey, and C. J. Corben. 2000. Distribution and Status of Red Bats, *Lasiurus blossevillii*, in California. Report to Species Conservation and Recovery Program, Habitat Conservation Planning Branch, California Department of Fish and Game, Sacramento, California.
- Reyes, G. A., M. J. Rodriguez, K. T. Lindke, K. L. Ayres, M. D. Halterman, B. B. Boroski, and D. S. Johnston. 2016. Searcher efficiency and survey coverage affect precision of fatality estimates. *Journal of Wildlife Management* 80:1488–1496.
- Ryan, T. P. 1996. Activity Patterns of the White-throated Swift in Southern California. M.S. Thesis. California State University, Long Beach, California.
- Santa Clara Valley Habitat Authority. 2018. Santa Clara Valley Habitat Plan 2018 Burrowing Owl Breeding Season Survey Report. Morgan Hill, California.
- Shoenfeld, P. 2004. Suggestions regarding avian mortality extrapolation. Unpublished report to West Virginia Highlands Conservancy, Davis, West Virginia.
- Smallwood, K. S. 2007. Estimating wind turbine-caused bird mortality. *Journal of Wildlife Management* 71:2781–2791.
- Smallwood, K. S. 2013. Comparing bird and bat fatality-rate estimates among North American wind-energy projects. *Wildlife Society Bulletin* 37:19–33.
- Smallwood, K. S. 2017. Independent consultant. Davis, California. August 18, 2017—conversation with Jeff Smith of H. T. Harvey Associates regarding current carcass persistence rates in the Altamont Pass Wind Resource Area.
- Smallwood, K. S., D. A. Bell, S. A. Snyder, and J. E. DiDonato. 2010. Novel scavenger removal trials increase wind turbine-caused avian fatality estimates. *Journal of Wildlife Management* 74:1089–1097.
- Smallwood, K. S., and B. Karas. 2009. Avian and bat fatality rates at old-generation and repowered wind turbines in California. *Journal of Wildlife Management* 73:1062–1071.

- Smallwood, K. S., and L. Neher. 2016. Bird and Bat Impacts and Behaviors at Old Wind Turbines at Forebay, Altamont Pass Wind Resource Area. CEC-500-2016-066. California Energy Commission, Sacramento, California.
- Smallwood, K. S., L. Neher, J. Mount, and R. C. Culver. 2013. Nesting burrowing owl density and abundance in the Altamont Pass Wind Resource Area, California. *Wildlife Society Bulletin* 37:787–795.
- Stevens, D. L., Jr., and A. R. Olsen. 2004. Spatially balanced sampling of natural resources. *Journal of the American Statistical Association* 99:262–278.
- Strickland, M. D., E. B. Arnett, W. P. Erickson, D. H. Johnson, G. D. Johnson, M. L. Morrison, J. A. Shaffer, and W. Warren-Hicks. 2011. Comprehensive Guide to Studying Wind Energy/Wildlife Interactions. Prepared for the National Wind Coordinating Collaborative, Washington, D.C.
- Thompson, S. K. 1992. Sampling. John Wiley & Sons, Inc., New York, New York.
- U.S. Fish and Wildlife Service. 2012. U.S. Fish and Wildlife Service Land-based Wind Energy Guidelines. Arlington, Virginia.
- Warren-Hicks, W., J. Newman, R. Wolpert, B. Karas, and L. Tran. 2013. Improving methods for estimating fatality of birds and bats at wind energy facilities. CEC-500-2012-086. California Wind Energy Association, Berkeley, California, and California Energy Commission, Public Interest Energy Research Program, Sacramento, California.
- Western EcoSystems Technology. 2006. Diablo Winds Wildlife Monitoring Progress Report: March 2005–February 2006. Cheyenne, Wyoming.
- Wiens, J. D., and P. S. Kolar. 2016. Summary of Golden Eagle Surveys in the Northern Diablo Range, California, 2016. U.S. Geological Survey, Forest and Rangeland Science Center, Corvallis, Oregon. Prepared for Contra Costa Water District–Los Vaqueros, Brentwood, California.
- Wiens, J. D., P. S. Kolar, M. R. Fuller, W. Grainger Hunt, and T. Hunt. 2015. Estimation of Occupancy, Breeding Success, and Abundance of Golden Eagles (*Aquila chrysaetos*) in the Diablo Range, California, 2014. U.S. Geological Survey Open-File Report 2015-1039.
- Wiens, J. D., P. S. Kolar, W. G. Hunt, T. Hunt., M. R. Fuller, and D. A. Bell. 2018. Spatial patterns in occupancy and reproduction of Golden Eagles during drought: prospects for conservation in changing environments. *Ornithological Applications* 120:106–124.
- Wolpert, R. L. 2015. ACME: a partially periodic estimator of avian and chiropteran mortality at wind turbines. Cornell University Library: arXiv:1507.00749v1 [stat.AP]. <http://arxiv.org/abs/1507.00749>. Accessed August 2014.

## Appendix A. Common and Scientific Names of Bats and Birds Mentioned in This Report

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Taxon	Common name	Scientific Name
Bats	Big brown bat	<i>Eptesicus fuscus</i>
	California myotis	<i>Myotis californicus</i>
	Hoary bat	<i>Lasiurus cinereus</i>
	Mexican free-tailed bat	<i>Tadarida brasiliensis</i>
	Western red bat	<i>Lasiurus blossevillii</i>
Birds	American crow	<i>Corvus brachyrhynchos</i>
	American kestrel	<i>Falco sparverius</i>
	American pipit	<i>Anthus rubescens</i>
	American robin	<i>Turdus migratorius</i>
	Band-tailed pigeon	<i>Patagioenas fasciata</i>
	Barn owl	<i>Tyto alba</i>
	Black-headed grosbeak	<i>Pheucticus melanocephalus</i>
	Black-throated gray warbler	<i>Setophaga nigrescens</i>
	Brewer's blackbird	<i>Euphagus cyanocephalus</i>
	Brown-headed cowbird	<i>Molothrus ater</i>
	Burrowing owl	<i>Athene cunicularia</i>
	California gull	<i>Larus californicus</i>
	California quail	<i>Callipepla californica</i>
	California scrub-jay	<i>Aphelocoma californica</i>
	Canada goose	<i>Branta canadensis</i>
	Cedar waxwing	<i>Bombycilla cedrorum</i>
	Chestnut-backed chickadee	<i>Poecile rufescens</i>
	Common raven	<i>Corvus corax</i>
	Dark-eyed junco	<i>Junco hyemalis</i>
	European starling	<i>Sturnus vulgaris</i>
	Ferruginous hawk	<i>Buteo regalis</i>
	Golden eagle	<i>Aquila chrysaetos</i>
	Golden-crowned sparrow	<i>Zonotrichia atricapilla</i>
	Great blue heron	<i>Ardea herodias</i>
	Great egret	<i>Casmerodius alba</i>
	Great horned owl	<i>Bubo virginianus</i>
	Hermit warbler	<i>Setophaga occidentalis</i>
	Horned lark	<i>Eremophila alpestris</i>
	House finch	<i>Haemorhous mexicanus</i>
	House sparrow	<i>Passer domesticus</i>
	House wren	<i>Troglodytes aedon</i>

Taxon	Common name	Scientific Name
	Killdeer	<i>Charadrius vociferus</i>
	Least sandpiper	<i>Calidris minutilla</i>
	Long-billed curlew	<i>Numenius americanus</i>
	Loggerhead shrike	<i>Lanius ludovicianus</i>
	Mallard	<i>Anas platyrhynchos</i>
	Mountain bluebird	<i>Sialia currucoides</i>
	Mourning dove	<i>Zenaida macroura</i>
	Northern harrier	<i>Circus cyaneus</i>
	Orange-crowned warbler	<i>Oreothlypis celata</i>
	Prairie falcon	<i>Falco mexicanus</i>
	Red-shouldered hawk	<i>Buteo lineatus</i>
	Red-tailed hawk	<i>Buteo jamaicensis</i>
	Red-winged blackbird	<i>Agelaius phoeniceus</i>
	Rock pigeon	<i>Columba livia</i>
	Rough-legged hawk	<i>Buteo lagopus</i>
	Ruby-crowned kinglet	<i>Regulus calendula</i>
	Rufous hummingbird	<i>Selasphorus rufus</i>
	Savannah sparrow	<i>Passerculus sandwichensis</i>
	Sharp-shinned hawk	<i>Accipiter striatus</i>
	Short-eared owl	<i>Asio flammeus</i>
	Steller's jay	<i>Cyanocitta stelleri</i>
	Townsend's warbler	<i>Setophaga townsendi</i>
	Tree swallow	<i>Tachycineta bicolor</i>
	Turkey vulture	<i>Cathartes aura</i>
	Vaux's swift	<i>Chaetura vauxi</i>
	Warbling vireo	<i>Vireo gilvus</i>
	Western flycatcher	<i>Empidonax difficilis/occidentalis</i>
	Western kingbird	<i>Tyrannus verticalis</i>
	Western meadowlark	<i>Sturnella neglecta</i>
	Western sandpiper	<i>Calidris mauri</i>
	Western tanager	<i>Piranga ludoviciana</i>
	White-crowned sparrow	<i>Zonotrichia leucophrys</i>
	White-tailed kite	<i>Elanus leucurus</i>
	White-throated swift	<i>Aeronautes saxatalis</i>
	Wilson's warbler	<i>Cardellina pusilla</i>
	Yellow warbler	<i>Setophaga petechia</i>

## Appendix B. Fatality Surveys Conducted During Year 2

Turbine	Number of Surveys by Type		First Survey	Last Survey
	7-day	28-day		
WTG-01	0	13	21-Sep-17	22-Aug-18
WTG-02	52	0	18-Sep-17	10-Sep-18
WTG-03	52	0	18-Sep-17	10-Sep-18
WTG-04	0	13	21-Sep-17	22-Aug-18
WTG-05	0	13	21-Sep-17	22-Aug-18
WTG-06	0	13	21-Sep-17	21-Aug-18
WTG-07	0	13	19-Sep-17	21-Aug-18
WTG-08	0	13	28-Sep-17	29-Aug-18
WTG-09	0	13	28-Sep-17	30-Aug-18
WTG-10	52	0	18-Sep-17	10-Sep-18
WTG-11	51	0	20-Sep-17	12-Sep-18
WTG-12	0	13	19-Sep-17	21-Aug-18
WTG-13	51	0	19-Sep-17	11-Sep-18
WTG-14	0	13	27-Sep-17	28-Aug-18
WTG-15	0	13	19-Sep-17	23-Aug-18
WTG-16	0	13	19-Sep-17	23-Aug-18
WTG-17	0	13	27-Sep-17	28-Aug-18
WTG-18	52	0	18-Sep-17	10-Sep-18
WTG-19	0	13	27-Sep-17	29-Aug-18
WTG-20	0	13	05-Oct-17	05-Sep-18
WTG-21	0	13	05-Oct-17	05-Sep-18
WTG-22	52	0	19-Sep-17	11-Sep-18
WTG-23	50	0	19-Sep-17	11-Sep-18
WTG-24	0	13	28-Sep-17	29-Aug-18
WTG-25	0	13	05-Oct-17	04-Sep-18
WTG-26	0	13	05-Oct-17	05-Sep-18
WTG-27	52	0	20-Sep-17	12-Sep-18
WTG-28	0	13	27-Sep-17	28-Aug-18
WTG-29	51	0	20-Sep-17	12-Sep-18
WTG-30	51	0	19-Sep-17	11-Sep-18
WTG-31	0	13	28-Sep-17	30-Aug-18
WTG-32	0	13	04-Oct-17	04-Sep-18
WTG-33	0	13	12-Oct-17	13-Sep-18
WTG-34	52	0	20-Sep-17	12-Sep-18
WTG-35	0	13	12-Oct-17	13-Sep-18
WTG-36	0	13	12-Oct-17	12-Sep-18
WTG-37	0	13	12-Oct-17	12-Sep-18
WTG-38	0	13	04-Oct-17	06-Sep-18
WTG-39	0	13	04-Oct-17	06-Sep-18
WTG-40	0	13	11-Oct-17	12-Sep-18
WTG-41	0	13	11-Oct-17	11-Sep-18
WTG-42	0	13	11-Oct-17	11-Sep-18
WTG-43	0	13	04-Oct-17	04-Sep-18
WTG-44	48	0	21-Sep-17 <sup>1</sup>	13-Sep-18
WTG-45	48	0	12-Oct-17 <sup>1</sup>	13-Sep-18
WTG-46	0	13	11-Oct-17	11-Sep-18
WTG-47	49	0	05-Oct-17 <sup>1</sup>	13-Sep-18
WTG-48	49	0	05-Oct-17 <sup>1</sup>	13-Sep-18

<sup>1</sup> Early surveys restricted by road construction activity.

## Appendix C. Fatality and Injury Incidents in Year 2

Date	Species	Turbine ID	Survey Type	Distance From Turbine (m)	Bearing From Turbine (°)	Carcass Condition	Included to Estimate Fatalities?
26-Sep-17	American kestrel	WTG-13	7d	10	170	Intact-partial decomposed	Included
27-Sep-17	American kestrel	WTG-14	28d	10	324	Scavenged-feather spot	Included
02-Oct-17	American kestrel	WTG-10	7d	37	170	Intact-partial decomposed	Included
09-Oct-17	American kestrel	WTG-18	7d	15	280	Scavenged-partial decomposed	Included
18-Oct-17	American kestrel	WTG-11	7d	87	70	Scavenged-feather spot	Included
26-Oct-17	American kestrel	WTG-44	7d	80	60	Scavenged-feather spot	Included
08-Nov-17	American kestrel	WTG-34	7d	20	110	Intact-fresh	Included
29-Nov-17	American kestrel	WTG-11	Incidental	135	20	Scavenged-partial decomposed	Excluded; off plot
27-Dec-17	American kestrel	WTG-22	7d	45	315	Scavenged-feather spot	Included
04-Jun-18	American kestrel	WTG-13	Incidental	282	64	Scavenged-feather spot	Excluded; off plot
20-Aug-18	American kestrel	WTG-03	7d	40	350	Intact-fresh	Included
03-Jan-18	American pipit	WTG-40	28d	8	344	Intact-fresh	Included
27-Mar-18	American pipit	WTG-22	7d	13	310	Scavenged-feather spot	Included
29-Mar-18	American pipit	WTG-33	28d	13	230	Scavenged-partial decomposed	Included
25-Jul-18	Barn owl	WTG-11	7d	100	320	Scavenged-feather spot	Included
25-Jul-18	Barn owl	WTG-34	7d	105	355	Scavenged-feather spot	Included
25-Jul-18	Barn owl	WTG-01	28d	96	290	Intact-partial decomposed	Included
04-Oct-17	Burrowing owl	WTG-39	28d	94	110	Intact-partial decomposed	Included
10-Oct-17	Burrowing owl	WTG-22	7d	100	340	Scavenged-feather spot	Included
11-Oct-17	Burrowing owl	WTG-42	28d	40	50	Scavenged-feather spot	Included
12-Oct-17	Burrowing owl	WTG-37	28d	43	210	Intact-fresh	Included
14-Nov-17	Burrowing owl	WTG-23	7d	80	200	Scavenged-feather spot	Included
04-Jan-18	Burrowing owl	WTG-34	7d	86	280	Scavenged-fresh	Included
05-Jan-18	Burrowing owl	WTG-33	28d	37	80	Scavenged-partial decomposed	Included
11-Jan-18	Burrowing owl	WTG-34	7d	90	152	Scavenged-feather spot	Included
15-Feb-18	Burrowing owl	WTG-09	28d	98	252	Scavenged-feather spot	Included
20-Feb-18	Burrowing owl	WTG-43	28d	34	265	Intact-fresh	Included
01-Mar-18	Burrowing owl	WTG-35	28d	100	300	Scavenged-feather spot	Included
15-Mar-18	Burrowing owl	WTG-09	28d	60	330	Scavenged-fresh	Included
12-Apr-18	Burrowing owl	WTG-44	7d	50	120	Scavenged-decomposed	Included
25-Apr-18	Burrowing owl	WTG-37	28d	63	178	Scavenged-feather spot	Included
16-May-18	Burrowing owl	WTG-11	7d	95	20	Scavenged-partial decomposed	Included
17-May-18	Burrowing owl	WTG-41	28d	37	180	Scavenged-feather spot	Included
01-Jun-18	Burrowing owl	WTG-44	7d	60	340	Scavenged-feather spot	Included
19-Jun-18	Burrowing owl	WTG-23	Incidental	124	130	Scavenged-feather spot	Excluded; off plot
16-Jul-18	Burrowing owl	WTG-18	7d	60	158	Scavenged-feather spot	Included
19-Jul-18	Burrowing owl	WTG-48	Incidental	115	135	Intact-partial decomposed	Excluded; off plot
31-Jul-18	Burrowing owl	WTG-30	7d	40	260	Scavenged-feather spot	Included

Date	Species	Turbine ID	Survey Type	Distance From Turbine (m)	Bearing From Turbine (°)	Carcass Condition	Included to Estimate Fatalities?
16-Aug-18	Burrowing owl	WTG-47	7d	90	190	Scavenged-feather spot	Included
28-Aug-18	Burrowing owl	WTG-22	7d	80	85	Scavenged-partial decomposed	Included
11-Sep-18	Burrowing owl	WTG-46	28d	53	60	Scavenged-partial decomposed	Included
13-Sep-18	Burrowing owl	WTG-44	7d	100	45	Scavenged-feather spot	Included
04-Dec-17	California myotis	WTG-10	7d	100	160	Scavenged-fresh	Included
23-May-18	Common raven	WTG-36	28d	21	165	Intact-partial decomposed	Included
05-Jun-18	Common raven	WTG-03	7d	29	308	Scavenged-partial decomposed	Included
07-Nov-17	European starling	WTG-22	7d	40	300	Scavenged-feather spot	Included
30-Nov-17	European starling	WTG-20	28d	28	50	Scavenged-decomposed	Included
21-Dec-17	European starling	WTG-45	7d	25	30	Scavenged-feather spot	Included
15-Feb-18	European starling	WTG-45	7d	100	160	Scavenged-feather spot	Included
19-Jun-18	European starling	WTG-13	7d	88	330	Scavenged-feather spot	Included
14-Nov-17	Ferruginous hawk	WTG-17	28d	14	340	Intact-fresh	Included
21-Dec-17	Ferruginous hawk	WTG-47	7d	25	170	Severed wing-fresh	Included
23-Feb-18	Ferruginous hawk	WTG-44	7d	30	170	Incomplete severed torso-fresh	Included
17-Oct-17	Golden eagle	WTG-30	7d	23	230	Intact-partial decomposed	Included
18-Oct-17	Golden eagle	WTG-01	28d	44	260	Intact-partial decomposed	Included
17-Jan-18	Golden eagle	WTG-19	28d	55	182	Intact-partial decomposed	Included
07-Feb-18	Golden eagle	WTG-05	28d	70	119	Severed wing-fresh	Included
11-Apr-18	Golden eagle	WTG-08	28d	72	315	Intact-partial decomposed	Included
02-May-18	Golden eagle	WTG-11	7d	28	20	Intact-fresh	Included
31-May-18	Golden eagle	WTG-16	28d	66	60	Scavenged-partial decomposed	Included
31-May-18	Golden eagle	WTG-16	28d	37	10	Intact-partial decomposed	Included
22-Jun-18	Golden eagle	WTG-37	28d	26	5	Intact-partial decomposed	Included
06-Jul-18	Golden eagle	WTG-33/34/36/37 Incidental	-	-	-	Probable blade-strike injury-euthanized	Included
11-Jul-18	Golden eagle	WTG-14	28d	19	40	Incomplete severed torso-partial decomposed	Included
25-Jul-18	Golden eagle	WTG-11	7d	35	170	Incomplete severed torso-partial decomposed	Included
22-Aug-18	Golden eagle	WTG-14	28d	79	100	Scavenged-partial decomposed	Included
06-Sep-18	Golden eagle	WTG-39	28d	78	80	Intact-partial decomposed	Included
02-Nov-17	Hermit thrush	WTG-44	7d	20	160	Scavenged-feather spot	Included
22-Aug-18	Hermit warbler	WTG-11	7d	95	45	Intact-fresh	Included
27-Aug-18	Hermit warbler	WTG-02	7d	60	50	Intact-partial decomposed	Included
18-Sep-17	Hoary bat	WTG-18	7d	20	50	Intact-partial decomposed	Included
19-Sep-17	Hoary bat	WTG-23	7d	60	10	Scavenged-partial decomposed	Included
19-Sep-17	Hoary bat	WTG-23	7d	95	20	Intact-partial decomposed	Included
19-Sep-17	Hoary bat	WTG-23	7d	90	50	Intact-partial decomposed	Included
20-Sep-17	Hoary bat	WTG-29	7d	100	95	Scavenged-partial decomposed	Included
20-Sep-17	Hoary bat	WTG-34	7d	51	80	Intact-partial decomposed	Included
20-Sep-17	Hoary bat	WTG-34	7d	101	50	Intact-partial decomposed	Included

Date	Species	Turbine ID	Survey Type	Distance From Turbine (m)	Bearing From Turbine (°)	Carcass Condition	Included to Estimate Fatalities?
20-Sep-17	Hoary bat	WTG-34	7d	92	50	Scavenged-partial decomposed	Included
20-Sep-17	Hoary bat	WTG-34	7d	79	90	Intact-partial decomposed	Included
25-Sep-17	Hoary bat	WTG-03	7d	10	40	Intact-partial decomposed	Included
25-Sep-17	Hoary bat	WTG-18	7d	10	100	Intact-partial decomposed	Included
25-Sep-17	Hoary bat	WTG-13	7d	10	90	Intact-partial decomposed	Included
26-Sep-17	Hoary bat	WTG-22	7d	10	60	Scavenged-partial decomposed	Included
27-Sep-17	Hoary bat	WTG-27	7d	10	95	Intact-partial decomposed	Included
27-Sep-17	Hoary bat	WTG-27	7d	10	45	Intact-partial decomposed	Included
27-Sep-17	Hoary bat	WTG-29	7d	10	30	Intact-partial decomposed	Included
02-Oct-17	Hoary bat	WTG-02	7d	80	240	Scavenged-partial decomposed	Included
05-Oct-17	Hoary bat	WTG-48	7d	100	60	Scavenged-partial decomposed	Included
16-Oct-17	Hoary bat	WTG-03	7d	12	260	Intact-partial decomposed	Included
18-Oct-17	Hoary bat	WTG-11	7d	76	10	Scavenged-partial decomposed	Included
25-Oct-17	Hoary bat	WTG-22	7d	50	100	Intact-partial decomposed	Included
13-Nov-17	Hoary bat	WTG-18	7d	80	30	Scavenged-partial decomposed	Included
15-Nov-17	Hoary bat	WTG-29	7d	80	100	Scavenged-partial decomposed	Included
27-Nov-17	Hoary bat	WTG-10	7d	60	280	Intact-partial decomposed	Included
12-Mar-18	Hoary bat	WTG-10	7d	20	230	Intact-fresh	Included
01-May-18	Hoary bat	WTG-13	7d	26	356	Scavenged-partial decomposed	Included
02-May-18	Hoary bat	WTG-27	7d	15	20	Intact-partial decomposed	Included
14-May-18	Hoary bat	WTG-02	7d	80	60	Scavenged-partial decomposed	Included
21-May-18	Hoary bat	WTG-02	7d	80	30	Intact-partial decomposed	Included
22-May-18	Hoary bat	WTG-13	7d	45	20	Intact-partial decomposed	Included
29-May-18	Hoary bat	WTG-02	7d	95	40	Intact-partial decomposed	Included
31-May-18	Hoary bat	WTG-27	7d	70	70	Intact-fresh	Included
07-Jun-18	Hoary bat	WTG-11	7d	51	90	Scavenged-decomposed	Included
08-Jun-18	Hoary bat	WTG-48	7d	98	94	Scavenged-partial decomposed	Included
11-Jun-18	Hoary bat	WTG-03	7d	70	90	Scavenged-partial decomposed	Included
18-Jun-18	Hoary bat	WTG-03	7d	79	100	Scavenged-partial decomposed	Included
21-Jun-18	Hoary bat	WTG-33	28d	95	30	Scavenged-partial decomposed	Included
26-Jun-18	Hoary bat	WTG-22	7d	90	35	Intact-fresh	Included
29-Jun-18	Hoary bat	WTG-45	7d	45	60	Intact-partial decomposed	Included
29-Jun-18	Hoary bat	WTG-45	7d	80	55	Intact-fresh	Included
02-Jul-18	Hoary bat	WTG-18	7d	80	45	Intact-partial decomposed	Included
23-Jul-18	Hoary bat	WTG-18	7d	75	40	Intact-partial decomposed	Included
30-Aug-18	Hoary bat	WTG-47	7d	95	90	Scavenged-partial decomposed	Included
06-Sep-18	Hoary bat	WTG-44	7d	60	226	Scavenged-fresh	Included
06-Sep-18	Hoary bat	WTG-48	7d	100	80	Scavenged-partial decomposed	Included
12-Sep-18	Hoary bat	WTG-27	7d	10	20	Intact-decomposed	Included
27-Sep-17	Horned lark	WTG-39	7d	10	230	Intact-partial decomposed	Included
04-Oct-17	Horned lark	WTG-47	28d	45	100	Scavenged-partial decomposed	Included
05-Oct-17	Horned lark	WTG-47	7d	70	180	Scavenged-partial decomposed	Included

Date	Species	Turbine ID	Survey Type	Distance From Turbine (m)	Bearing From Turbine (°)	Carcass Condition	Included to Estimate Fatalities?
11-Oct-17	Horned lark	WTG-42	28d	89	100	Scavenged-feather spot	Included
08-Nov-17	Horned lark	WTG-27	7d	70	40	Scavenged-feather spot	Included
20-Nov-17	Horned lark	WTG-10	7d	10	245	Intact-fresh	Included
29-Nov-17	Horned lark	WTG-29	7d	20	100	Intact-partial decomposed	Included
30-Nov-17	Horned lark	WTG-44	7d	8	100	Scavenged-feather spot	Included
03-Jan-18	Horned lark	WTG-36	28d	50	166	Intact-fresh	Included
16-Jan-18	Horned lark	WTG-30	7d	30	120	Scavenged-feather spot	Included
06-Feb-18	Horned lark	WTG-22	7d	80	100	Scavenged-feather spot	Included
08-Feb-18	Horned lark	WTG-44	7d	30	355	Scavenged-feather spot	Included
19-Feb-18	Horned lark	WTG-18	7d	100	170	Scavenged-feather spot	Included
15-Mar-18	Horned lark	WTG-48	7d	105	120	Scavenged-feather spot	Included
26-Mar-18	Horned lark	WTG-10	7d	42	70	Intact-fresh	Included
29-Mar-18	Horned lark	WTG-35	28d	35	160	Intact-fresh	Included
18-Apr-18	Horned lark	WTG-34	7d	65	354	Scavenged-partial decomposed	Included
01-May-18	Horned lark	WTG-13	7d	17	52	Intact-partial decomposed	Included
03-May-18	Horned lark	WTG-45	7d	35	90	Scavenged-partial decomposed	Included
09-May-18	Horned lark	WTG-29	7d	95	50	Scavenged-partial decomposed	Included
23-May-18	Horned lark	WTG-27	7d	100	40	Scavenged-partial decomposed	Included
23-May-18	Horned lark	WTG-29	7d	80	95	Scavenged-feather spot	Included
29-May-18	Horned lark	WTG-02	7d	40	90	Scavenged-fresh	Included
31-May-18	Horned lark	WTG-15	7d	20	60	Intact-partial decomposed	Included
06-Jun-18	Horned lark	WTG-10	7d	78	340	Scavenged-feather spot	Included
07-Jun-18	Horned lark	WTG-29	7d	68	126	Scavenged-partial decomposed	Included
13-Jun-18	Horned lark	WTG-27	7d	96	56	Scavenged-partial decomposed	Included
21-Jun-18	Horned lark	WTG-47	7d	15	308	Scavenged-partial decomposed	Included
27-Jun-18	Horned lark	WTG-29	7d	70	85	Scavenged-partial decomposed	Included
03-Jul-18	Horned lark	WTG-13	7d	40	320	Scavenged-feather spot	Included
03-Jul-18	Horned lark	WTG-22	7d	30	25	Scavenged-feather spot	Included
16-Jul-18	Horned lark	WTG-03	7d	42	176	Scavenged-fresh	Included
24-Jul-18	Horned lark	WTG-22	7d	25	340	Scavenged-partial decomposed	Included
11-Sep-18	Horned lark	WTG-22	7d	10	320	Scavenged-feather spot	Included
18-Dec-17	House finch	WTG-10	7d	30	250	Scavenged-feather spot	Excluded: off plot
28-Jun-18	House wren	WTG-27	Incidental	110	6	Scavenged-partial decomposed	Included
01-Aug-18	House wren	WTG-29	7d	100	60	Intact-fresh	Included
23-Aug-18	Killdeer	WTG-45	7d	95	95	Scavenged-feather spot	Included
24-Jan-18	Loggerhead shrike	WTG-21	28d	85	208	Scavenged-feather spot	Included
04-Oct-17	Mallard	WTG-39	28d	55	70	Scavenged-partial decomposed	Included
12-Sep-18	Mallard	WTG-40	28d	90	205	Scavenged-feather spot	Included
18-Sep-17	Mexican free-tailed bat	WTG-18	7d	100	80	Intact-partial decomposed	Included
18-Sep-17	Mexican free-tailed bat	WTG-18	7d	16	350	Intact-partial decomposed	Included
19-Sep-17	Mexican free-tailed bat	WTG-13	7d	60	65	Intact-partial decomposed	Included
19-Sep-17	Mexican free-tailed bat	WTG-22	7d	15	80	Intact-partial decomposed	Included

Date	Species	Turbine ID	Survey Type	Distance From Turbine (m)	Bearing From Turbine (°)	Carcass Condition	Included to Estimate Fatalities?
19-Sep-17	Mexican free-tailed bat	WTG-22	7d	90	70	Scavenged-partial decomposed	Included
19-Sep-17	Mexican free-tailed bat	WTG-23	7d	70	190	Scavenged-partial decomposed	Included
20-Sep-17	Mexican free-tailed bat	WTG-27	7d	20	35	Scavenged-decomposed	Included
20-Sep-17	Mexican free-tailed bat	WTG-34	7d	52	25	Scavenged-fresh	Included
20-Sep-17	Mexican free-tailed bat	WTG-34	7d	25	80	Scavenged-partial decomposed	Included
20-Sep-17	Mexican free-tailed bat	WTG-34	7d	88	20	Scavenged-fresh	Included
25-Sep-17	Mexican free-tailed bat	WTG-02	7d	30	75	Intact-partial decomposed	Included
25-Sep-17	Mexican free-tailed bat	WTG-02	7d	10	60	Intact-partial decomposed	Included
25-Sep-17	Mexican free-tailed bat	WTG-03	7d	10	40	Intact-fresh	Included
25-Sep-17	Mexican free-tailed bat	WTG-10	7d	10	30	Intact-partial decomposed	Included
26-Sep-17	Mexican free-tailed bat	WTG-22	7d	10	45	Intact-fresh	Included
26-Sep-17	Mexican free-tailed bat	WTG-22	7d	10	345	Intact-partial decomposed	Included
27-Sep-17	Mexican free-tailed bat	WTG-11	7d	10	160	Intact-fresh	Included
27-Sep-17	Mexican free-tailed bat	WTG-11	7d	10	115	Intact-fresh	Included
27-Sep-17	Mexican free-tailed bat	WTG-27	7d	10	65	Scavenged-partial decomposed	Included
27-Sep-17	Mexican free-tailed bat	WTG-27	7d	10	180	Scavenged-partial decomposed	Included
27-Sep-17	Mexican free-tailed bat	WTG-28	28d	10	130	Intact-fresh	Included
27-Sep-17	Mexican free-tailed bat	WTG-29	7d	10	60	Scavenged-partial decomposed	Included
27-Sep-17	Mexican free-tailed bat	WTG-29	7d	10	50	Intact-fresh	Included
27-Sep-17	Mexican free-tailed bat	WTG-29	7d	10	290	Intact-fresh	Included
28-Sep-17	Mexican free-tailed bat	WTG-34	7d	10	30	Intact-partial decomposed	Included
28-Sep-17	Mexican free-tailed bat	WTG-34	7d	10	195	Intact-fresh	Included
02-Oct-17	Mexican free-tailed bat	WTG-02	7d	40	10	Scavenged-partial decomposed	Included
02-Oct-17	Mexican free-tailed bat	WTG-02	7d	100	90	Intact-partial decomposed	Included
02-Oct-17	Mexican free-tailed bat	WTG-03	7d	60	70	Scavenged-partial decomposed	Included
02-Oct-17	Mexican free-tailed bat	WTG-10	7d	50	60	Intact-partial decomposed	Included
03-Oct-17	Mexican free-tailed bat	WTG-22	7d	80	110	Intact-fresh	Excluded; off plot
03-Oct-17	Mexican free-tailed bat	WTG-22	7d	80	130	Scavenged-partial decomposed	Included
04-Oct-17	Mexican free-tailed bat	WTG-11	7d	90	30	Intact-fresh	Included
05-Oct-17	Mexican free-tailed bat	WTG-27	7d	55	80	Intact-fresh	Included
05-Oct-17	Mexican free-tailed bat	WTG-48	7d	20	340	Intact-partial decomposed	Included
05-Oct-17	Mexican free-tailed bat	WTG-48	7d	15	85	Intact-partial decomposed	Included
05-Oct-17	Mexican free-tailed bat	WTG-48	7d	22	330	Intact-partial decomposed	Included
09-Oct-17	Mexican free-tailed bat	WTG-02	7d	8	50	Intact-partial decomposed	Included
09-Oct-17	Mexican free-tailed bat	WTG-18	7d	30	190	Intact-partial decomposed	Included
13-Oct-17	Mexican free-tailed bat	WTG-10	7d	40	90	Intact-fresh	Included
16-Oct-17	Mexican free-tailed bat	WTG-10	7d	80	80	Scavenged-decomposed	Included
16-Oct-17	Mexican free-tailed bat	WTG-10	7d	100	105	Intact-partial decomposed	Included
16-Oct-17	Mexican free-tailed bat	WTG-18	7d	2	340	Intact-partial decomposed	Included
17-Oct-17	Mexican free-tailed bat	WTG-23	7d	40	160	Scavenged-decomposed	Included
18-Oct-17	Mexican free-tailed bat	WTG-29	7d	30	180	Intact-partial decomposed	Included
23-Oct-17	Mexican free-tailed bat	WTG-18	7d	2	270	Intact-fresh	Included

Date	Species	Turbine ID	Survey Type	Distance From Turbine (m)	Bearing From Turbine (°)	Carcass Condition	Included to Estimate Fatalities?
26-Oct-17	Mexican free-tailed bat	WTG-45	7d	25	170	Scavenged-partial decomposed	Included
20-Nov-17	Mexican free-tailed bat	WTG-03	7d	15	180	Scavenged-partial decomposed	Included
23-Nov-17	Mexican free-tailed bat	WTG-48	7d	60	130	Intact-partial decomposed	Included
30-Nov-17	Mexican free-tailed bat	WTG-45	Incidental	135	50	Scavenged-partial decomposed	Excluded: off plot
05-Dec-17	Mexican free-tailed bat	WTG-22	7d	70	160	Scavenged-partial decomposed	Included
26-Mar-18	Mexican free-tailed bat	WTG-02	7d	72	42	Intact-fresh	Included
27-Mar-18	Mexican free-tailed bat	WTG-22	7d	8	339	Intact-partial decomposed	Included
14-May-18	Mexican free-tailed bat	WTG-02	7d	20	20	Intact-partial decomposed	Included
14-May-18	Mexican free-tailed bat	WTG-02	7d	100	60	Intact-partial decomposed	Included
17-May-18	Mexican free-tailed bat	WTG-48	7d	90	30	Intact-partial decomposed	Included
21-May-18	Mexican free-tailed bat	WTG-03	7d	95	200	Intact-partial decomposed	Included
21-May-18	Mexican free-tailed bat	WTG-03	7d	20	90	Intact-partial decomposed	Included
06-Jun-18	Mexican free-tailed bat	WTG-10	7d	60	46	Scavenged-partial decomposed	Included
11-Jun-18	Mexican free-tailed bat	WTG-03	7d	80	60	Intact-partial decomposed	Included
12-Jun-18	Mexican free-tailed bat	WTG-22	7d	78	92	Intact-partial decomposed	Included
12-Jun-18	Mexican free-tailed bat	WTG-22	7d	100	78	Scavenged-partial decomposed	Included
29-Jun-18	Mexican free-tailed bat	WTG-45	7d	100	140	Intact-fresh	Included
12-Jul-18	Mexican free-tailed bat	WTG-44	7d	47	68	Scavenged-partial decomposed	Included
16-Jul-18	Mexican free-tailed bat	WTG-10	7d	65	120	Scavenged-partial decomposed	Included
24-Jul-18	Mexican free-tailed bat	WTG-23	7d	60	95	Intact-partial decomposed	Included
25-Jul-18	Mexican free-tailed bat	WTG-34	7d	95	75	Scavenged-partial decomposed	Included
31-Jul-18	Mexican free-tailed bat	WTG-30	Incidental	115	60	Scavenged-partial decomposed	Excluded: off plot
20-Aug-18	Mexican free-tailed bat	WTG-02	7d	102	10	Intact-partial decomposed	Included
11-Sep-18	Mexican free-tailed bat	WTG-41	28d	46	50	Scavenged-partial decomposed	Included
12-Sep-18	Mexican free-tailed bat	WTG-29	7d	30	55	Intact-fresh	Included
30-Jan-18	Mountain bluebird	WTG-22	7d	95	240	Scavenged-feather spot	Included
19-Sep-17	Mourning dove	WTG-13	7d	30	320	Scavenged-feather spot	Included
04-Dec-17	Northern harrier	WTG-02	7d	5	200	Intact-fresh	Included
21-Dec-17	Prairie falcon	WTG-47	7d	95	10	Scavenged-partial decomposed	Included
04-Oct-17	Red-tailed hawk	WTG-38	Incidental	125	96	Intact-partial decomposed	Excluded: off plot
04-Oct-17	Red-tailed hawk	WTG-39	28d	48	110	Intact-fresh	Included
05-Oct-17	Red-tailed hawk	WTG-47	7d	55	230	Intact-partial decomposed	Included
10-Oct-17	Red-tailed hawk	WTG-22	7d	60	200	Dismembered carcass-fresh	Included
12-Oct-17	Red-tailed hawk	WTG-33	28d	90	102	Intact-partial decomposed	Included
12-Oct-17	Red-tailed hawk	WTG-36	28d	73	360	Dismembered/scavenged carcass-partial decomposed	Included
12-Oct-17	Red-tailed hawk	WTG-37	28d	89	100	Severed wing-partial decomposed	Included
25-Oct-17	Red-tailed hawk	WTG-14	28d	59	280	Scavenged-partial decomposed	Included
01-Nov-17	Red-tailed hawk	WTG-43	28d	77	40	Scavenged-feather spot	Included
01-Nov-17	Red-tailed hawk	WTG-43	28d	29	100	Intact-partial decomposed	Included
07-Nov-17	Red-tailed hawk	WTG-22	7d	10	300	Intact-fresh	Included
29-Nov-17	Red-tailed hawk	WTG-39	28d	25	144	Intact-partial decomposed	Included

Date	Species	Turbine ID	Survey Type	Distance From Turbine (m)	Bearing From Turbine (°)	Carcass Condition	Included to Estimate Fatalities?
07-Dec-17	Red-tailed hawk	WTG-45	7d	95	280	Scavenged-feather spot	Included
12-Dec-17	Red-tailed hawk	WTG-06	28d	43	180	Scavenged-feather spot	Included
20-Dec-17	Red-tailed hawk	WTG-23	7d	50	90	Scavenged-feather spot	Included
28-Dec-17	Red-tailed hawk	WTG-39	28d	32	328	Intact-partial decomposed	Included
17-Jan-18	Red-tailed hawk	WTG-24	28d	35	356	Intact-partial decomposed	Included
13-Feb-18	Red-tailed hawk	WTG-14	Incidental	114	254	Scavenged-partial decomposed	Excluded: off plot
19-Feb-18	Red-tailed hawk	WTG-03	7d	10	80	Intact-fresh	Included
01-Mar-18	Red-tailed hawk	WTG-35	28d	36	210	Intact-fresh	Included
20-Mar-18	Red-tailed hawk	WTG-25	28d	27	332	Scavenged-partial decomposed	Included
25-Apr-18	Red-tailed hawk	WTG-36	28d	52	77	Scavenged-partial decomposed	Included
01-May-18	Red-tailed hawk	WTG-22	7d	25	130	Intact-fresh	Included
02-May-18	Red-tailed hawk	WTG-04	28d	23	250	Intact-partial decomposed	Included
15-May-18	Red-tailed hawk	WTG-25	28d	46	333	Intact-partial decomposed	Included
19-Jun-18	Red-tailed hawk	WTG-42	28d	52	105	Intact-partial decomposed	Included
25-Jun-18	Red-tailed hawk	WTG-02	7d	41	84	Intact-fresh	Included
11-Jul-18	Red-tailed hawk	WTG-26	28d	89	29	Intact-decomposed	Included
26-Jul-18	Red-tailed hawk	WTG-16	28d	73	260	Intact-partial decomposed	Included
13-Sep-18	Red-tailed hawk	WTG-45	7d	80	270	Intact-partial decomposed	Included
12-Oct-17	Ruby-crowned kinglet	WTG-37	28d	103	140	Scavenged-fresh	Included
18-Oct-17	Ruby-crowned kinglet	WTG-34	7d	25	180	Intact-partial decomposed	Included
23-Oct-17	Ruby-crowned kinglet	WTG-18	7d	30	290	Intact-partial decomposed	Included
10-Apr-18	Ruby-crowned kinglet	WTG-13	7d	23	240	Intact-partial decomposed	Included
08-May-18	Rufous hummingbird	WTG-13	7d	15	110	Intact-partial decomposed	Included
08-Nov-17	Savannah sparrow	WTG-42	28d	45	326	Scavenged-feather spot	Included
08-Feb-18	Sharp-shinned hawk	WTG-15	28d	31	330	Intact-fresh	Included
13-Sep-18	Townsend's warbler	WTG-47	7d	103	50	Intact-partial decomposed	Included
04-Apr-18	Tree swallow	WTG-34	7d	17	74	Scavenged-partial decomposed	Included
26-Jun-18	Turkey vulture	WTG-12	28d	26	140	Intact-partial decomposed	Included
11-Jul-18	Turkey vulture	WTG-26	28d	94	44	Complete/scattered-decomposed	Included
12-Jun-18	Unknown bat	WTG-23	7d	44	72	Scavenged-partial decomposed	Included
04-Jul-18	Unknown bat	WTG-27	7d	100	80	Intact-partial decomposed	Included
19-Apr-18	Unknown bird	WTG-44	Incidental	109	182	Scavenged-decomposed	Excluded: off plot
14-Dec-17	Unknown blackbird	WTG-44	7d	40	280	Scavenged-feather spot	Included
14-Dec-17	Unknown blackbird	WTG-44	7d	40	280	Scavenged-feather spot	Included
06-Mar-18	Unknown blackbird	WTG-22	7d	50	320	Scavenged-feather spot	Included
10-May-18	Unknown blackbird	WTG-45	Incidental	120	340	Scavenged-feather spot	Excluded: off plot
17-Oct-17	Unknown flycatcher	WTG-12	28d	43	20	Scavenged-partial decomposed	Included
30-May-18	Unknown flycatcher	WTG-18	7d	60	40	Intact-partial decomposed	Included
15-Aug-18	Unknown flycatcher	WTG-27	Incidental	130	50	Scavenged-partial decomposed	Excluded: off plot
10-Jan-18	Unknown large raptor	WTG-13	Incidental	55	305	Scavenged-decomposed	Excluded: not from survey area
01-Oct-17	Unknown small bird	WTG-08	28d	18	344	Scavenged-feather spot	Included

## Appendix D. Carcass Detectability Trial Specimens Placed in Year 2

Date Placed	Survey Type	Turbine ID	Distance From Turbine (m)	Bearing From Turbine (°)	Placement Substrate	Species	Size Class	Average Species Mass (g)	Date Found	Carcass Age at Discovery (days)
27-Sep-17	7d	34	89	360	Tall grass/forb	Brown-headed cowbird	Small	42	28-Sep-17	1
27-Sep-17	28d	32	99	240	Tall grass/forb	Common raven	Large	1200	04-Oct-17	7
27-Sep-17	28d	17	86	190	Grazed/short grass	European starling	Small	82	Not Found	-
27-Sep-17	28d	38	27	160	Grazed/short grass	Mexican free-tailed bat	Small	9.5	Not Found	-
28-Sep-17	7d	22	101	190	Grazed/short grass	California gull	Large	610	03-Oct-17	5
29-Sep-17	7d	11	40	90	Grazed/short grass	Mexican free-tailed bat	Small	9.5	04-Oct-17	5
03-Oct-17	7d	29	49	60	Tall grass/forb	American crow	Medium	450	04-Oct-17	1
03-Oct-17	28d	20	84	30	Tall grass/forb	California scrub-jay	Small	85	Not Found	-
03-Oct-17	7d	27	87	180	Tall grass/forb	Cedar waxwing	Small	32	01-Nov-17	29
03-Oct-17	7d	34	17	240	Grazed/short grass	Mexican free-tailed bat	Small	9.5	25-Oct-17	22
05-Oct-17	28d	28	37	180	Tall grass/forb	Canada goose	Large	4500	25-Oct-17	20
05-Oct-17	28d	4	51	220	Tall grass/forb	Mexican free-tailed bat	Small	9.5	Not Found	-
11-Oct-17	28d	31	73	270	Tall grass/forb	California gull	Large	610	26-Oct-17	15
11-Oct-17	7d	22	39	120	Grazed/short grass	Mexican free-tailed bat	Small	9.5	17-Oct-17	6
11-Oct-17	7d	23	69	280	Grazed/short grass	Red-tailed hawk	Large	1080	17-Oct-17	6
12-Oct-17	7d	13	102	330	Grazed/short grass	European starling	Small	82	17-Oct-17	5
12-Oct-17	28d	26	39	70	Tall grass/forb	House sparrow	Small	28	Not Found	-
12-Oct-17	28d	46	93	110	Grazed/short grass	Mexican free-tailed bat	Small	9.5	Not Found	-
16-Oct-17	28d	4	91	180	Grazed/short grass	California gull	Large	610	18-Oct-17	2
16-Oct-17	28d	8	95	90	Tall grass/forb	Mexican free-tailed bat	Small	9.5	Not Found	-
16-Oct-17	28d	7	63	350	Tall grass/forb	White-crowned sparrow	Small	26	Not Found	-
17-Oct-17	7d	47	60	270	Grazed/short grass	Little brown bat	Small	8.2	26-Oct-17	9
17-Oct-17	7d	45	60	190	Tall grass/forb	Mallard	Large	1225	Not Found	-
19-Oct-17	7d	27	53	90	Grazed/short grass	Red-winged blackbird	Small	44	25-Oct-17	6
25-Oct-17	7d	18	32	230	Tall grass/forb	American robin	Small	80	Not Found	-
25-Oct-17	28d	42	67	20	Grazed/short grass	California gull	Large	610	08-Nov-17	14
25-Oct-17	28d	24	68	260	Grazed/short grass	House finch	Small	21	Not Found	-
25-Oct-17	7d	10	30	240	Tall grass/forb	Long-billed curlew	Large	590	30-Oct-17	5
25-Oct-17	28d	14	57	230	Tall grass/forb	Mexican tree-tailed bat	Small	9.5	Not Found	-
26-Oct-17	7d	23	97	140	Grazed/short grass	Mexican free-tailed bat	Small	9.5	21-Nov-17	26
31-Oct-17	28d	43	48	220	Grazed/short grass	Cedar waxwing	Small	32	Not Found	-
31-Oct-17	7d	30	23	120	Tall grass/forb	Mexican free-tailed bat	Small	9.5	Not Found	-
09-Nov-17	7d	18	88	150	Tall grass/forb	California gull	Large	610	13-Nov-17	4
09-Nov-17	7d	2	28	330	Grazed/short grass	Cedar waxwing	Small	32	13-Nov-17	4
09-Nov-17	28d	6	22	90	Gravel/dirt	Hoary bat	Small	30	Not Found	-
09-Nov-17	28d	1	69	210	Grazed/short grass	Red-tailed hawk	Large	1080	16-Nov-17	7
17-Nov-17	7d	27	91	60	Tall grass/forb	American kestrel	Medium	112	22-Nov-17	5
17-Nov-17	28d	40	65	30	Grazed/short grass	European starling	Small	82	Not Found	-

Date Placed	Survey Type	Turbine ID	Distance From Turbine (m)	Bearing From Turbine (°)	Placement Substrate	Species	Size Class	Average Species Mass (g)	Date Found	Carcass Age at Discovery (days)
17-Nov-17	28d	17	14	340	Grazed/short grass	Ferruginous hawk	Large	1600	21-Nov-17	4
17-Nov-17	7d	30	99	240	Tall grass/forb	Golden-crowned sparrow	Small	29	21-Nov-17	4
17-Nov-17	7d	29	90	210	Grazed/short grass	Hoary bat	Small	30	25-Nov-17	8
17-Nov-17	28d	17	40	240	Gravel/dirt	Mexican free-tailed bat	Medium	9.5	Not Found	-
29-Nov-17	28d	26	88	220	Grazed/short grass	Band-tailed pigeon	Medium	360	30-Nov-17	1
29-Nov-17	7d	48	90	220	Grazed/short grass	Chestnut-backed chickadee	Small	9.7	14-Dec-17	15
29-Nov-17	7d	45	17	270	Grazed/short grass	Mexican free-tailed bat	Small	9.5	Not Found	-
29-Nov-17	7d	44	76	270	Grazed/short grass	Red-tailed hawk	Large	1080	30-Nov-17	1
01-Dec-17	28d	31	102	320	Tall grass/forb	Mexican free-tailed bat	Small	9.5	Not Found	-
01-Dec-17	28d	8	97	140	Grazed/short grass	Steller's jay	Medium	120	Not Found	-
06-Dec-17	7d	48	71	280	Grazed/short grass	Canada goose	Large	4500	07-Dec-17	1
06-Dec-17	7d	44	85	70	Grazed/short grass	Orange-crowned warbler	Small	10	14-Dec-17	8
06-Dec-17	28d	16	54	270	Grazed/short grass	Red-tailed hawk	Large	1080	14-Dec-17	8
07-Dec-17	28d	4	98	230	Tall grass/forb	Horned lark	Small	32	Not Found	-
07-Dec-17	28d	33	66	100	Grazed/short grass	Mexican free-tailed bat	Small	9.5	Not Found	-
07-Dec-17	7d	10	82	300	Grazed/short grass	Mexican free-tailed bat	Small	9.5	11-Dec-17	4
12-Dec-17	28d	15	96	110	Grazed/short grass	Cedar waxwing	Small	32	Not Found	-
12-Dec-17	7d	23	64	250	Grazed/short grass	Cedar waxwing	Small	32	12-Dec-17	<1
12-Dec-17	7d	2	95	80	Grazed/short grass	Mexican free-tailed bat	Small	9.5	26-Dec-17	14
12-Dec-17	28d	12	98	358	Grazed/short grass	Red-tailed hawk	Large	1080	12-Dec-17	<1
12-Dec-17	28d	42	47	350	Grazed/short grass	Mexican free-tailed bat	Small	9.5	Not Found	-
14-Dec-17	7d	47	65	320	Grazed/short grass	Red-tailed hawk	Large	1080	14-Dec-17	<1
18-Dec-17	28d	28	98	260	Grazed/short grass	Dark-eyed junco	Small	19	Not Found	-
18-Dec-17	28d	14	49	340	Grazed/short grass	Mexican free-tailed bat	Small	9.5	Not Found	-
18-Dec-17	7d	48	68	50	Grazed/short grass	Mexican free-tailed bat	Small	9.5	21-Dec-17	3
18-Dec-17	7d	45	88	40	Grazed/short grass	Mourning dove	Medium	120	21-Dec-17	3
18-Dec-17	28d	38	28	130	Grazed/short grass	Red-tailed hawk	Large	1080	Not Found	-
19-Dec-17	7d	11	82	290	Grazed/short grass	Great egret	Large	935	21-Dec-17	2
28-Dec-17	7d	13	63	160	Gravel/dirt	Band-tailed pigeon	Medium	360	03-Jan-18	6
28-Dec-17	7d	3	93	190	Grazed/short grass	House sparrow	Small	28	Not Found	-
28-Dec-17	7d	18	62	360	Grazed/short grass	Mexican free-tailed bat	Small	9.5	Not Found	-
29-Dec-17	28d	36	36	220	Grazed/short grass	Great egret	Large	935	03-Jan-18	5
29-Dec-17	28d	37	34	80	Grazed/short grass	House sparrow	Small	28	03-Jan-18	5
29-Dec-17	28d	36	96	50	Grazed/short grass	Mexican free-tailed bat	Small	9.5	Not Found	-
03-Jan-18	28d	6	78	310	Grazed/short grass	Cedar waxwing	Small	32	Not Found	-
03-Jan-18	7d	29	74	320	Tall grass/forb	Cedar waxwing	Small	32	Not Found	-
03-Jan-18	28d	25	34	280	Tall grass/forb	Red-tailed hawk	Large	1080	23-Jan-18	20
03-Jan-18	7d	30	64	320	Tall grass/forb	Red-tailed hawk	Large	1080	04-Jan-18	1
05-Jan-18	28d	44	96	260	Grazed/short grass	Mexican free-tailed bat	Small	9.5	Not Found	-
05-Jan-18	28d	16	35	210	Grazed/short grass	Mexican free-tailed bat	Small	9.5	Not Found	-
09-Jan-18	7d	22	65	330	Grazed/short grass	European starling	Small	82	10-Jan-18	1
09-Jan-18	28d	24	41	320	Grazed/short grass	Red-tailed hawk	Large	1080	17-Jan-18	8
10-Jan-18	7d	83	40	40	Grazed/short grass	California gull	Large	610	15-Jan-18	5

Date Placed	Survey Type	Turbine ID	Distance From Turbine (m)	Bearing From Turbine (°)	Placement Substrate	Species	Size Class	Average Species Mass (g)	Date Found	Carcass Age at Discovery (days)
10-Jan-18	28d	42	65	30	Grazed/short grass	European starling	Small	82	Not Found	-
10-Jan-18	7d	13	90	220	Grazed/short grass	Mexican free-tailed bat	Small	9.5	Not Found	-
10-Jan-18	28d	41	87	300	Grazed/short grass	Mexican free-tailed bat	Small	9.5	Not Found	-
11-Jan-18	28d	19	62	140	Grazed/short grass	California gull	Large	610	17-Jan-18	<1
17-Jan-18	28d	19	61	170	Grazed/short grass	Golden eagle <sup>1</sup>	Large	4200	17-Jan-18	<1
17-Jan-18	7d	47	52	140	Grazed/short grass	Great blue heron	Large	2270	18-Jan-18	1
17-Jan-18	7d	10	60	40	Grazed/short grass	Western flycatcher	Small	11	Not Found	-
18-Jan-18	28d	20	59	160	Grazed/short grass	Horned lark	Small	32	Not Found	-
18-Jan-18	7d	27	43	80	Grazed/short grass	Mexican free-tailed bat	Small	9.5	Not Found	-
18-Jan-18	28d	26	37	220	Grazed/short grass	Mexican free-tailed bat	Small	9.5	Not Found	-
23-Jan-18	7d	23	62	100	Grazed/short grass	California gull	Large	610	23-Jan-18	<1
23-Jan-18	28d	21	101	200	Grazed/short grass	California gull	Large	610	24-Jan-18	1
23-Jan-18	28d	41	72	60	Grazed/short grass	House sparrow	Small	28	Not Found	-
23-Jan-18	7d	34	92	250	Grazed/short grass	House sparrow	Small	28	07-Feb-18	15
23-Jan-18	28d	15	71	270	Grazed/short grass	Mexican free-tailed bat	Small	9.5	Not Found	-
23-Jan-18	7d	23	61	260	Grazed/short grass	Mexican free-tailed bat	Small	9.5	25-Jan-18	2
31-Jan-18	28d	19	93	290	Grazed/short grass	Cedar waxwing	Small	32	Not Found	-
31-Jan-18	7d	44	99	140	Grazed/short grass	Cedar waxwing	Small	32	01-Feb-18	1
31-Jan-18	28d	35	33	90	Grazed/short grass	Great blue heron	Large	2270	01-Feb-18	1
31-Jan-18	7d	34	74	340	Grazed/short grass	Red-shouldered hawk	Large	630	31-Jan-18	<1
05-Feb-18	28d	25	91	50	Grazed/short grass	European starling	Small	82	Not Found	-
05-Feb-18	7d	13	51	120	Grazed/short grass	European starling	Small	82	06-Feb-18	1
05-Feb-18	28d	40	81	30	Grazed/short grass	Rock pigeon	Medium	270	Not Found	-
05-Feb-18	7d	29	95	230	Grazed/short grass	Rock pigeon	Medium	270	07-Feb-18	2
12-Feb-18	28d	9	58	70	Grazed/short grass	Cedar waxwing	Small	32	Not Found	-
12-Feb-18	7d	30	99	200	Grazed/short grass	Cedar waxwing	Small	32	13-Feb-18	1
12-Feb-18	7d	18	82	360	Grazed/short grass	Great horned owl	Large	1500	12-Feb-18	<1
12-Feb-18	28d	8	48	320	Grazed/short grass	Red-shouldered hawk	Large	630	14-Feb-18	2
22-Feb-18	7d	2	63	160	Grazed/short grass	California quail	Medium	170	Not Found	-
22-Feb-18	28d	1	25	320	Grazed/short grass	House sparrow	Small	28	Not Found	-
22-Feb-18	28d	5	89	340	Grazed/short grass	Rock pigeon	Medium	270	07-Mar-18	13
22-Feb-18	7d	10	39	280	Grazed/short grass	Rock pigeon	Medium	270	26-Feb-18	4
26-Feb-18	7d	48	43	130	Grazed/short grass	Great blue heron	Large	2270	01-Mar-18	3
26-Feb-18	28d	43	101	240	Grazed/short grass	Great horned owl	Large	1500	20-Mar-18	22
26-Feb-18	28d	36	96	60	Grazed/short grass	House sparrow	Small	28	Not Found	-
26-Feb-18	7d	44	69	260	Grazed/short grass	Red-shouldered hawk	Large	630	08-Mar-18	1
07-Mar-18	28d	15	89	240	Grazed/short grass	Western meadowlark	Small	100	Not Found	-
07-Mar-18	7d	27	2	20	Gravel/dirt	Sharp-shinned hawk	Medium	141	08-Mar-18	<1
08-Mar-18	7d	45	99	360	Grazed/short grass	White-throated swift	Small	32	Not Found	-
08-Mar-18	28d	14	63	230	Gravel/dirt	Horned lark	Small	32	Not Found	-
12-Mar-18	7d	18	26	300	Gravel/dirt	Sharp-shinned hawk	Medium	141	27-Mar-18	15
12-Mar-18	7d	22	59	230	Gravel/dirt	Canada goose	Large	4500	22-Mar-18	7
15-Mar-18	28d	39	89	10	Grazed/short grass					

Date Placed	Survey Type	Turbine ID	Distance From Turbine (m)	Bearing From Turbine (°)	Placement Substrate	Species	Size Class	Average Species Mass (g)	Date Found	Carcass Age at Discovery (days)
15-Mar-18	28d	38	72	300	Gravel/dirt	White-throated swift	Small	32	Not Found	-
19-Mar-18	7d	11	75	80	Grazed/short grass	American pipit	Small	21	Not Found	-
19-Mar-18	28d	1	13	350	Gravel/dirt	Ferruginous hawk	Large	1600	04-Apr-18	16
19-Mar-18	7d	13	45	200	Grazed/short grass	Red-tailed hawk	Large	1080	27-Mar-18	8
22-Mar-18	28d	31	23	90	Grazed/short grass	House finch	Small	21	Not Found	-
26-Mar-18	28d	40	86	190	Grazed/short grass	American kestrel	Medium	125	Not Found	-
26-Mar-18	28d	38	51	80	Grazed/short grass	House sparrow	Small	28	Not Found	-
26-Mar-18	7d	48	50	40	Tall grass/forb	House sparrow	Small	28	Not Found	-
28-Mar-18	7d	44	23	140	Grazed/short grass	Great egret	Large	935	29-Mar-18	1
02-Apr-18	28d	33	98	300	Grazed/short grass	Cedar waxwing	Small	32	Not Found	-
02-Apr-18	28d	26	79	90	Grazed/short grass	Rock pigeon	Medium	270	Not Found	-
03-Apr-18	7d	23	7	8	Grazed/short grass	Cedar waxwing	Small	32	Not Found	-
03-Apr-18	7d	34	94	312	Grazed/short grass	Hoary bat	Small	30	Not Found	-
03-Apr-18	7d	34	41	184	Grazed/dirt	Rock pigeon	Medium	270	04-Apr-18	1
09-Apr-18	28d	43	26	150	Gravel/dirt	Barn owl	Medium	460	Not Found	-
09-Apr-18	28d	35	56	130	Grazed/short grass	Western sandpiper	Small	25	Not Found	-
10-Apr-18	7d	10	39	237	Grazed/short grass	Barn owl	Medium	460	16-Apr-18	6
10-Apr-18	7d	23	84	175	Grazed/short grass	Least sandpiper	Small	23	12-Jun-18	63
17-Apr-18	7d	3	40	269	Grazed/short grass	House finch	Small	21	23-Apr-18	6
17-Apr-18	7d	3	7	182	Gravel/dirt	Mexican free-tailed bat	Small	9.5	Not Found	-
18-Apr-18	7d	18	55	227	Grazed/short grass	Red-tailed hawk	Large	1080	23-Apr-18	5
19-Apr-18	28d	42	9	80	Gravel/dirt	House finch	Small	21	Not Found	-
19-Apr-18	28d	16	67	170	Tall grass/forb	Red-tailed hawk	Large	1080	31-May-18	42
27-Apr-18	28d	24	28	230	Tall grass/forb	Barn owl	Medium	460	09-May-18	12
27-Apr-18	7d	30	103	170	Tall grass/forb	California gull	Large	610	01-May-18	4
27-Apr-18	28d	12	56	200	Tall grass/forb	European starling	Small	82	Not Found	-
27-Apr-18	7d	45	51	90	Grazed/short grass	European starling	Small	82	Not Found	-
27-Apr-18	7d	22	59	290	Grazed/short grass	Mexican free-tailed bat	Small	9.5	06-Jun-18	40
01-May-18	7d	11	28	20	Grazed/short grass	Golden eagle <sup>1</sup>	Large	4200	02-May-18	1
02-May-18	7d	2	102	80	Tall grass/forb	Horned lark	Small	32	21-May-18	19
27-Apr-18	28d	37	18	260	Tall grass/forb	Mexican free-tailed bat	Small	32	Not Found	-
27-Apr-18	7d	45	100	280	Tall grass/forb	Red-tailed hawk	Large	1080	08-Jun-18	36
03-May-18	28d	9	6	20	Gravel/dirt	Rock pigeon	Medium	270	Not Found	-
03-May-18	28d	21	42	40	Tall grass/forb	Hoary bat	Small	21	Not Found	-
03-May-18	7d	29	5	80	Gravel/dirt	House finch	Small	21	20-Jun-18	42
11-May-18	7d	11	73	180	Tall grass/forb	Mexican free-tailed bat	Small	9.5	16-May-18	5
11-May-18	28d	37	74	160	Grazed/short grass	Red-tailed hawk	Large	1080	23-May-18	12
11-May-18	7d	23	27	30	Grazed/short grass	Rock pigeon	Medium	270	15-May-18	4
16-May-18	7d	48	100	140	Tall grass/forb	Hoary bat	Small	30	14-Jun-18	29
16-May-18	7d	47	77	40	Grazed/short grass	Western sandpiper	Small	25	17-May-18	1
17-May-18	28d	46	29	150	Grazed/short grass	Great blue heron	Large	2270	22-May-18	5
17-May-18	7d	27	87	60	Tall grass/forb	Turkey vulture	Large	1830	22-May-18	5
17-May-18	28d	41	82	190	Grazed/short grass	Western sandpiper	Small	25	Not Found	-

Date Placed	Survey Type	Turbine ID	Distance From Turbine (m)	Bearing From Turbine (°)	Placement Substrate	Species	Size Class	Average Species Mass (g)	Date Found	Carcass Age at Discovery (days)
21-May-18	28d	7	88	360	Tall grass/forb	Canada goose	Large	4500	Not Found	-
21-May-18	28d	5	54	90	Tall grass/forb	European starling	Small	82	Not Found	-
21-May-18	7d	10	59	290	Grazed/short grass	European starling	Small	82	21-May-18	<1
21-May-18	7d	2	43	360	Gravel/dirt	Red-tailed hawk	Large	1080	21-May-18	<1
04-Jun-18	7d	34	75	230	Tall grass/forb	Canada goose	Large	4500	07-Jun-18	3
04-Jun-18	28d	17	100	10	Gravel/dirt	House sparrow	Small	28	Not Found	-
04-Jun-18	7d	13	47	140	Gravel/dirt	House sparrow	Small	28	Not Found	-
04-Jun-18	28d	20	31	190	Grazed/short grass	Red-tailed hawk	Large	1080	13-Jun-18	9
06-Jun-18	28d	38	2	360	Gravel/dirt	Mexican free-tailed bat	Small	9.5	Not Found	-
06-Jun-18	7d	44	17	270	Grazed/short grass	Mexican free-tailed bat	Small	9.5	08-Jun-18	2
15-Jun-18	28d	24	69	20	Tall grass/forb	Cedar waxwing	Small	32	Not Found	-
15-Jun-18	7d	11	8	280	Gravel/dirt	Cedar waxwing	Small	32	Not Found	-
15-Jun-18	28d	14	56	160	Grazed/short grass	Hoary bat	Small	30	Not Found	-
15-Jun-18	7d	23	63	170	Grazed/short grass	Hoary bat	Small	30	19-Jun-18	4
15-Jun-18	28d	42	19	360	Gravel/dirt	Red-tailed hawk	Large	1080	19-Jun-18	4
15-Jun-18	7d	23	78	230	Grazed/short grass	Red-tailed hawk	Large	1080	19-Jun-18	4
19-Jun-18	7d	3	62	180	Gravel/dirt	Barn owl	Medium	460	25-Jun-18	6
19-Jun-18	28d	12	91	200	Grazed/short grass	California gull	Large	610	Not Found	-
20-Jun-18	28d	4	91	180	Tall grass/forb	Mexican free-tailed bat	Small	9.5	Not Found	-
20-Jun-18	7d	47	99	340	Grazed/short grass	Mexican free-tailed bat	Small	9.5	21-Jun-18	1
20-Jun-18	28d	36	82	210	Tall grass/forb	Western sandpiper	Small	25	Not Found	-
20-Jun-18	7d	18	92	220	Tall grass/forb	Western sandpiper	Small	25	26-Jun-18	6
25-Jun-18	28d	6	58	80	Tall grass/forb	Mexican free-tailed bat	Small	9.5	Not Found	-
25-Jun-18	7d	22	67	340	Tall grass/forb	Rock pigeon	Medium	270	26-Jun-18	1
28-Jun-18	28d	31	46	20	Tall grass/forb	House sparrow	Small	28	Not Found	-
28-Jun-18	7d	48	62	310	Tall grass/forb	House sparrow	Small	28	05-Jul-18	7
28-Jun-18	7d	45	103	120	Grazed/short grass	Mexican free-tailed bat	Medium	270	05-Jul-18	7
28-Jun-18	28d	8	65	60	Tall grass/forb	Rock pigeon	Large	1080	25-Jul-18	20
05-Jul-18	28d	5	65	70	Tall grass/forb	Red-tailed hawk	Small	9.5	Not Found	-
06-Jul-18	28d	38	13	230	Gravel/dirt	European starling	Small	82	17-Jul-18	11
06-Jul-18	7d	30	5	90	Gravel/dirt	Mexican free-tailed bat	Small	9.5	Not Found	-
06-Jul-18	7d	18	47	130	Tall grass/forb	Mexican free-tailed bat	Small	9.5	Not Found	-
06-Jul-18	28d	20	51	70	Tall grass/forb	Red-tailed hawk	Large	1080	18-Jul-18	12
06-Jul-18	7d	11	94	40	Grazed/short grass	Red-tailed hawk	Large	1080	12-Jul-18	1
11-Jul-18	28d	39	101	120	Grazed/short grass	Western sandpiper	Small	25	Not Found	-
11-Jul-18	28d	14	49	30	Grazed/short grass	Western sandpiper	Small	25	17-Jul-18	6
11-Jul-18	7d	22	41	230	Tall grass/short grass	Mexican free-tailed bat	Small	9.5	Not Found	-
12-Jul-18	7d	10	65	110	Tall grass/forb	Mexican free-tailed bat	Small	9.5	Not Found	-
12-Jul-18	28d	19	102	50	Gravel/dirt	Red-tailed hawk	Large	1080	16-Jul-18	4
12-Jul-18	7d	10	63	350	Tall grass/forb	Cedar waxwing	Small	32	Not Found	-
17-Jul-18	7d	47	80	120	Grazed/short grass	Mallard	Large	1225	18-Jul-18	1
17-Jul-18	28d	36	58	50	Grazed/short grass	Mallard	Small	9.5	Not Found	-
17-Jul-18	28d	33	46	10	Grazed/short grass	Mexican free-tailed bat	Small	9.5	Not Found	-

Date Placed	Survey Type	Turbine ID	Turbine (m)	Bearing From Turbine (°)	Placement Substrate	Species	Size Class	Average Mass (g)	Date Found	Carcass Age at Discovery (days)
19-Jul-18	28d	1	15	220	Grazed/short grass	Cedar waxwing	Small	32	Not Found	-
19-Jul-18	7d	3	74	40	Tall grass/forb	Great blue heron	Large	2270	23-Jul-18	4
19-Jul-18	7d	2	36	120	Grazed/short grass	Mexican free-tailed bat	Small	9.5	23-Jul-18	4
26-Jul-18	7d	29	100	280	Gravel/dirt	Hoary bat	Small	30	Not Found	-
26-Jul-18	28d	9	2	10	Gravel/dirt	Hoary bat	Small	30	Not Found	-
26-Jul-18	28d	15	78	190	Grazed/short grass	House finch	Small	21	Not Found	-
26-Jul-18	7d	29	68	160	Grazed/short grass	House finch	Small	21	08-Aug-18	13
26-Jul-18	7d	27	52	330	Grazed/short grass	Rock pigeon	Medium	270	01-Aug-18	6
26-Jul-18	28d	17	15	180	Gravel/dirt	Rock pigeon	Medium	270	31-Jul-18	5
30-Jul-18	28d	28	90	120	Tall grass/forb	California gull	Large	610	Not Found	-
30-Jul-18	28d	21	57	290	Grazed/short grass	Mexican free-tailed bat	Small	9.5	Not Found	-
30-Jul-18	7d	34	73	150	Grazed/short grass	Mexican free-tailed bat	Small	9.5	01-Aug-18	2
31-Jul-18	7d	48	72	50	Grazed/short grass	California gull	Large	610	02-Aug-18	2
31-Jul-18	28d	39	39	150	Grazed/short grass	Western sandpiper	Small	25	Not Found	-
31-Jul-18	7d	47	58	100	Grazed/short grass	Wilson's warbler	Small	7	Not Found	-
09-Aug-18	7d	3	5	230	Gravel/dirt	Brown-headed cowbird	Small	45	27-Aug-18	18
09-Aug-18	28d	7	65	120	Tall grass/forb	Mallard	Large	1225	21-Aug-18	12
10-Aug-18	28d	16	92	110	Gravel/dirt	European starling	Small	82	Not Found	-
10-Aug-18	7d	44	89	130	Grazed/short grass	Mallard	Large	1225	16-Aug-18	6
10-Aug-18	28d	41	63	120	Grazed/short grass	Mexican free-tailed bat	Small	9.5	Not Found	-
10-Aug-18	7d	13	80	170	Grazed/short grass	Mexican free-tailed bat	Small	9.5	14-Aug-18	4
14-Aug-18	7d	45	84	90	Grazed/short grass	House sparrow	Small	28	Not Found	-
14-Aug-18	28d	36	86	330	Grazed/short grass	Mexican free-tailed bat	Small	9.5	Not Found	-
14-Aug-18	7d	27	76	210	Tall grass/forb	Mexican free-tailed bat	Small	9.5	15-Aug-18	1
14-Aug-18	7d	30	39	100	Grazed/short grass	Red-tailed hawk	Large	1080	21-Aug-18	7
16-Aug-18	28d	4	36	350	Grazed/short grass	House sparrow	Small	28	Not Found	-
16-Aug-18	28d	6	84	110	Tall grass/forb	Red-tailed hawk	Large	1080	21-Aug-18	5
22-Aug-18	28d	14	55	230	Gravel/dirt	Barn owl	Medium	460	28-Aug-18	6
22-Aug-18	7d	22	22	40	Grazed/short grass	House finch	Small	21	Not Found	-
24-Aug-18	7d	11	92	180	Grazed/short grass	Barn owl	Medium	460	29-Aug-18	5
24-Aug-18	28d	32	52	40	Grazed/short grass	Brown-headed cowbird	Small	48	Not Found	-
24-Aug-18	7d	30	100	290	Gravel/dirt	Mexican free-tailed bat	Small	9.5	Not Found	-
24-Aug-18	28d	31	94	130	Gravel/dirt	Mexican free-tailed bat	Small	9.5	Not Found	-
29-Aug-18	7d	10	95	180	Grazed/short grass	European starling	Small	82	10-Sep-18	12
29-Aug-18	7d	3	96	160	Grazed/short grass	Mexican free-tailed bat	Small	9.5	Not Found	-
29-Aug-18	28d	2	2	210	Gravel/dirt	Red-tailed hawk	Large	1080	03-Sep-18	5
31-Aug-18	28d	46	16	80	Grazed/short grass	European starling	Small	82	Not Found	-
31-Aug-18	28d	25	78	110	Grazed/short grass	Mexican free-tailed bat	Small	9.5	Not Found	-
31-Aug-18	28d	26	42	50	Grazed/short grass	Red-tailed hawk	Large	1080	05-Sep-18	5
05-Sep-18	28d	37	62	250	Grazed/short grass	American crow	Medium	450	Not Found	-
05-Sep-18	28d	39	25	120	Grazed/short grass	Hoary bat	Small	30	Not Found	-
05-Sep-18	7d	47	18	230	Grazed/short grass	Hoary bat	Small	30	06-Sep-18	1
07-Sep-18	7d	29	93	60	Grazed/short grass	American kestrel	Medium	112	Not Found	-

Date Placed	Survey Type	Turbine ID	Distance From Turbine (m)	Bearing From Turbine (°)	Placement Substrate	Species	Size Class	Average Species Mass (g)	Date Found	Carcass Age at Discovery (days)
07-Sep-18	28d	35	55	150	Grazed/short grass	Hermit warbler	Small	10	Not Found	-
07-Sep-18	7d	13	77	270	Tall grass/forb	House wren	Small	11	Not Found	-
10-Sep-18	28d	41	36	270	Grazed/short grass	Barn owl	Medium	460	Not Found	-
10-Sep-18	7d	13	11	320	Grazed/short grass	Barn owl	Medium	460	11-Sep-18	1
10-Sep-18	28d	35	29	340	Grazed/short grass	Hoary bat	Small	30	Not Found	-
10-Sep-18	7d	48	70	320	Gravel/dirt	Hoary bat	Small	30	13-Sep-18	3
10-Sep-18	7d	34	96	50	Grazed/short grass	House finch	Small	21	Not Found	-
10-Sep-18	28d	33	88	180	Grazed/short grass	House finch	Small	21	13-Sep-18	3

<sup>1</sup> Agency permits do not allow purposefully placing golden eagle carcasses for bias trials. These cases represented situations where incidental discoveries of eagle carcasses on survey plots, shortly before the next survey of those plots was scheduled, allowed us to opportunistically evaluate discovery of eagle carcasses by surveyors while still conforming to agency requirements that all eagle carcasses be collected in short order.

## Appendix E. Predicted Probability of Detection for Representative Bird Species Based on Average Mass, as Derived from Independent Logistic Regression Models for 7-day Dog and 28-day Human Fatality Surveys

Species	Average Mass (g)	Predicted Probability of Detection	
		7-day	28-day
Rufous hummingbird	3.3	0.486	0.059
Ruby-crowned kinglet	6.5	0.495	0.060
Wilson's warbler	7.0	0.496	0.060
Chestnut-backed chickadee	9.7	0.504	0.061
Hermit warbler	10	0.505	0.061
House wren	11	0.507	0.062
Warbling vireo	12	0.510	0.062
Vaux's swift	18	0.527	0.064
Dark-eyed junco	19	0.529	0.064
Tree swallow	20	0.532	0.065
House finch	21	0.535	0.065
White-crowned sparrow	26	0.549	0.067
Mountain bluebird	30	0.559	0.069
Hermit thrush	31	0.562	0.069
Horned lark	32	0.565	0.069
White-throated swift	32	0.565	0.069
Western kingbird	38	0.581	0.072
Black-headed grosbeak	45	0.600	0.075
Loggerhead shrike	47	0.605	0.076
Common poorwill	50	0.613	0.077
Brewer's blackbird	63	0.646	0.083
American robin	80	0.688	0.091
California scrub-jay	85	0.700	0.093
Western meadowlark	100	0.733	0.101
<b>American kestrel</b>	119	0.772	0.112
Mourning dove	120	0.774	0.113
Sharp-shinned hawk	141	0.812	0.126
<b>Burrowing owl</b>	151	0.828	0.133
California quail	170	0.856	0.147
Eurasian collared-dove	200	0.892	0.171
Rock pigeon	270	0.947	0.240
White-tailed kite	335	0.973	0.319

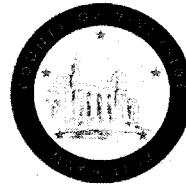
Species	Average Mass (g)	Predicted Probability of Detection	
		7-day	28-day
Green-winged teal	350	0.977	0.339
Band-tailed pigeon	360	0.980	0.353
Northern harrier	425	0.990	0.447
American crow	450	0.992	0.485
Barn owl	460	0.993	0.500
Long-billed curlew	590	0.998	0.688
California gull	610	0.999	0.713
Prairie falcon	709	1.000	0.819
Great egret	935	1.000	0.947
Rough-legged hawk	990	1.000	0.961
<b>Red-tailed hawk</b>	1080	1.000	0.977
Common raven	1200	1.000	0.989
Mallard	1225	1.000	0.990
Great horned owl	1500	1.000	0.998
Western grebe	1500	1.000	0.998
Ferruginous hawk	1600	1.000	0.999
Turkey vulture	1830	1.000	1.000
Great blue heron	2270	1.000	1.000
<b>Golden eagle</b>	4200	1.000	1.000
Canada goose	4500	1.000	1.000

## Appendix F. Facility-wide Adjusted Fatality Estimates for All Bat and Bird Species Documented in Year 2

Species	Number Found and Analyzed	Fatalities Per Turbine		Fatalities Per MW		Total Fatalities	
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI
<b>Bats</b>							
Mexican free-tailed bat	66	5.77	3.70 – 7.83	3.22	2.07 – 4.37	277	178 – 376
Hoary bat	45	4.10	3.10 – 5.11	2.29	1.73 – 2.86	197	149 – 245
Western red bat	2	0.18	0.00 – 0.43	0.10	0.00 – 0.24	9	0 – 21
California myotis	1	0.13	0.00 – 0.37	0.07	0.00 – 0.21	6	0 – 18
Unknown bat	2	0.23	0.00 – 0.54	0.13	0.00 – 0.30	11	0 – 26
<b>Birds</b>							
American kestrel	9	0.48	0.34 – 0.62	0.27	0.19 – 0.35	19	12 – 26
American pipit	3	0.61	0.46 – 0.75	0.34	0.26 – 0.42	16	12 – 20
Barn owl	3	0.10	0.00 – 0.23	0.06	0.00 – 0.13	4	0 – 11
Burrowing owl	23	1.97	1.65 – 2.28	1.10	0.92 – 1.28	99	82 – 117
Common raven	2	0.05	0.00 – 0.17	0.03	0.00 – 0.09	1	0 – 4
European starling	5	0.38	0.23 – 0.52	0.21	0.13 – 0.29	8	5 – 12
Ferruginous hawk	3	0.08	0.00 – 0.21	0.05	0.00 – 0.12	3	0 – 10
Golden eagle	14	0.31	0.00 – 0.62	0.17	0.00 – 0.35	15	0 – 32
Hermit thrush	1	0.06	0.02 – 0.09	0.03	0.01 – 0.05	1	0 – 1
Hermit warbler	2	0.12	0.08 – 0.17	0.07	0.05 – 0.09	2	1 – 3
Horned lark	34	2.66	2.39 – 2.94	1.49	1.33 – 1.64	111	97 – 124
House finch	1	0.06	0.02 – 0.09	0.03	0.01 – 0.05	1	0 – 2
House wren	1	0.06	0.03 – 0.10	0.03	0.01 – 0.05	2	1 – 3
Killdeer	1	0.04	0.01 – 0.08	0.02	0.00 – 0.04	1	0 – 1
Loggerhead shrike	1	0.24	0.15 – 0.32	0.13	0.09 – 0.18	7	4 – 9
Mallard	2	0.04	0.00 – 0.15	0.02	0.00 – 0.08	1	0 – 5

Species	Number Found and Analyzed	Fatalities Per Turbine			Fatalities Per MW			Total Fatalities		
		Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	Estimate	95% CI	
Mountain bluebird	1	0.04	0.01 – 0.08	0.02	0.00 – 0.04	1	0 – 1			
Mourning dove	1	0.19	0.14 – 0.24	0.11	0.08 – 0.13	3	2 – 4			
Northern harrier	1	0.03	0.00 – 0.07	0.02	0.00 – 0.04	1	0 – 1			
Prairie falcon	1	0.03	0.00 – 0.07	0.02	0.00 – 0.04	1	0 – 1			
Red-tailed hawk	28	0.66	0.29 – 1.04	0.37	0.16 – 0.58	30	9 – 51			
Ruby-crowned kinglet	4	0.49	0.36 – 0.62	0.27	0.20 – 0.35	11	8 – 15			
Rufous hummingbird	1	0.06	0.03 – 0.10	0.04	0.02 – 0.06	1	0 – 2			
Savannah sparrow	1	0.28	0.19 – 0.36	0.15	0.11 – 0.20	8	5 – 10			
Sharp-shinned hawk	1	0.11	0.03 – 0.20	0.06	0.02 – 0.11	3	1 – 6			
Townsend's warbler	1	0.06	0.03 – 0.10	0.03	0.01 – 0.05	1	0 – 2			
Tree swallow	1	0.06	0.02 – 0.09	0.03	0.01 – 0.05	1	0 – 2			
Turkey vulture	2	0.04	0.00 – 0.15	0.02	0.00 – 0.08	1	0 – 4			
Unidentified blackbird	4	0.20	0.13 – 0.28	0.11	0.07 – 0.16	3	2 – 4			
Unidentified flycatcher	2	0.35	0.23 – 0.47	0.20	0.13 – 0.26	9	6 – 12			
Unidentified small bird	11	0.79	0.63 – 0.94	0.44	0.35 – 0.53	16	12 – 19			
Unidentified vireo	1	0.05	0.02 – 0.09	0.03	0.01 – 0.05	1	0 – 1			
Unidentified warbler	4	0.25	0.19 – 0.31	0.14	0.11 – 0.17	4	3 – 5			
Vaux's swift	3	0.18	0.13 – 0.23	0.10	0.07 – 0.13	3	2 – 4			
Warbling vireo	3	0.18	0.14 – 0.23	0.10	0.08 – 0.13	3	2 – 4			
Western flycatcher	1	0.06	0.03 – 0.10	0.03	0.01 – 0.05	1	0 – 2			
Western kingbird	1	0.05	0.02 – 0.09	0.03	0.01 – 0.05	1	0 – 1			
Western meadowlark	15	0.91	0.69 – 1.12	0.51	0.38 – 0.63	37	27 – 48			
Western tanager	1	0.06	0.02 – 0.09	0.03	0.01 – 0.05	1	0 – 1			
White-tailed kite	1	0.06	0.00 – 0.14	0.03	0.00 – 0.08	2	0 – 4			
White-throated swift	19	1.45	1.21 – 1.70	0.81	0.68 – 0.95	59	48 – 70			
Wilson's warbler	3	0.19	0.13 – 0.25	0.11	0.07 – 0.14	3	2 – 4			
Yellow warbler	1	0.06	0.03 – 0.10	0.03	0.01 – 0.05	1	0 – 2			

**SUBMITTAL TO THE BOARD OF SUPERVISORS  
COUNTY OF RIVERSIDE, STATE OF CALIFORNIA**



ITEM  
1.4  
(ID # 8487)

**MEETING DATE:**

Tuesday, December 11, 2018

**FROM : TLMA-PLANNING:**

**SUBJECT: TRANSPORTATION & LAND MANAGEMENT AGENCY/PLANNING: RECEIVE AND FILE THE PLANNING COMMISSION'S APPROVAL OF COMMERCIAL WECS PERMIT NO. 180001 (WCS180001) / VARIANCE CASE NO. 180003 (VAR180003) and the ADOPTION OF THE MITIGATED NEGATIVE DECLARATION FOR ENVIRONMENTAL ASSESSMENT NO. 1800059 (CEQ180059) – Applicant: Painted Hills Wind, LLC – Engineer/Representative: Westwood Professional Services - Fifth Supervisorial District – Western Coachella Valley Area Plan – Open Space: Rural (OS:RUR) – Zoning: Wind Energy (W-E) – 600-Acres – Location: The site is located in Painted Hills north of Interstate 10, west of Highway 62; more specifically, north of 16th Avenue, east of Whitewater Canyon Road, west of Windhaven Road at terminus of Painted Hills Road – REQUEST: Commercial WECS Permit No. 180001 proposes to decommission and remove approximately 291 existing commercial wind turbines and install up to 14 new commercial wind turbines up to 499-feet in height with a per turbine generating capacity of between 2.0 megawatts (MW) and 4.2 MW on land within the Wind Energy Resource (W-E) Zone (herein the "Project"). The existing wind turbines were originally installed and have been operating since the mid-1980's. The Project also proposes to install ancillary equipment, including three (3) temporary, guyed meteorological towers up to 309-feet in height, two (2) permanent, self-supported meteorological towers up to 309-feet in height, a temporary expansion of an existing laydown yard, construction of new temporary and permanent internal access roads, and a new electrical collection system integrating the proposed wind turbines to the electrical grid via one of two options. [Applicant fees 100%.]**

**RECOMMENDED MOTION:** That the Board of Supervisors:

- 1. RECEIVE AND FILE** the Notice of Decision for the above referenced case acted on by the Planning Commission in Riverside on November 28, 2018.

**ACTION: Policy**

Charissa Leach, Assistant TLMA Director

12/4/2018

**SUBMITTAL TO THE BOARD OF SUPERVISORS COUNTY OF RIVERSIDE,  
STATE OF CALIFORNIA**

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**MINUTES OF THE BOARD OF SUPERVISORS**

**SUBMITTAL TO THE BOARD OF SUPERVISORS COUNTY OF RIVERSIDE,  
STATE OF CALIFORNIA**

<b>FINANCIAL DATA</b>	<b>Current Fiscal Year:</b>	<b>Next Fiscal Year:</b>	<b>Total Cost:</b>	<b>Ongoing Cost</b>
<b>COST</b>	\$ N/A	\$ N/A	\$ N/A	\$ N/A
<b>NET COUNTY COST</b>	\$ N/A	\$ N/A	\$ N/A	\$ N/A
<b>SOURCE OF FUNDS:</b> Applicant Fees 100%				<b>Budget Adjustment:</b> No
				<b>For Fiscal Year:</b> 18/19

**C.E.O. RECOMMENDATION:** Approve

**BACKGROUND:**

**Commercial WECS Permit No. 180001 (WCS180001)** proposes to decommission and remove approximately 291 existing commercial wind turbines (WECS) and install up to 14 new commercial wind turbines up to 499-feet in height with a per turbine generating capacity of between 2.0 megawatts (MW) and 4.2 MW on land within the Wind Energy Resource (W-E) Zone.

**Variance Case No. 180003** proposed reductions in WECS safety setbacks from 1.1 times total WECS height from lot lines abutting the Colorado River Aqueduct to between 325 feet and 515 feet, reduce WECS safety setbacks from 1.1 times total WECS height to 0 feet from all internal lot lines associated with W-E zoned land, reduce WECS safety setbacks from 1.25 time total WECS height to 555 feet from the northern boundary of the Southern California Edison transmission line easement located along the southern lot line of APN 516-030-014 and eliminate wind access setbacks along the northern, southern and eastern lot lines of the Project parcels.

**Commercial WECS Permit No. 180001** and **Variance Case No. 180003** were approved at the November 28, 2018, Planning Commission meeting in Riverside. Staff provided a Memorandum dated November 28, 2018, at the Planning Commission hearing, with comment letters from Adams Broadwell Joseph and Cardoza dated November 19, 2018, November 26, 2018, and November 27, 2018, and Responses to Comment letters dated November 27, 2018 and November 28, 2018 from Dudek & Associates and Cox Castle Nicholson.

Additionally, the Planning Commission added the following condition of approval to **WCS180001** as follows: "The project proponent or its representatives shall perform appropriate monitoring as part of a Post-Construction Avian and Bat Mortality Monitoring Plan in the first three years following the initial operation of the project to demonstrate to the Riverside County Planning Department Environmental Program Division ("EPD") that the level of incidental injury and mortality does not result in an unanticipated long-term decline in populations of avian or bat species in the vicinity of the project site. The plan shall be consistent with guidance from the U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife on development of appropriate avian and bat protection/monitoring plans. As part of this

**SUBMITTAL TO THE BOARD OF SUPERVISORS COUNTY OF RIVERSIDE,  
STATE OF CALIFORNIA**

monitoring plan, the project proponent shall provide the results of this annual survey to EPD within two weeks after each project operating year. The monitoring data shall be utilized to inform an adaptive management program, if needed, that would avoid and/or minimize project-related impacts to avian and bat species. If, after three years of monitoring under the plan, the EPD determines that the project is resulting in unanticipated significant adverse impacts on the population of an avian or bat species, the project proponent shall work with EPD to determine appropriate adaptive management measures to reduce such impacts."

**Board Action**

The Planning Commission's decision is final and no action by the Board of Supervisors is required unless the Board assumes jurisdiction by ordering the matter set for a future noticed public hearing, or the applicant or an interested person files a complete appeal application within 10 days of this notice appearing on the Board's agenda.

**Impact on Residents and Businesses**

The impacts of this project have been evaluated through the discretionary review process through the Planning Department and the project approval by the Planning Commission at the November 28, 2018, public hearing.

**ATTACHMENTS:**

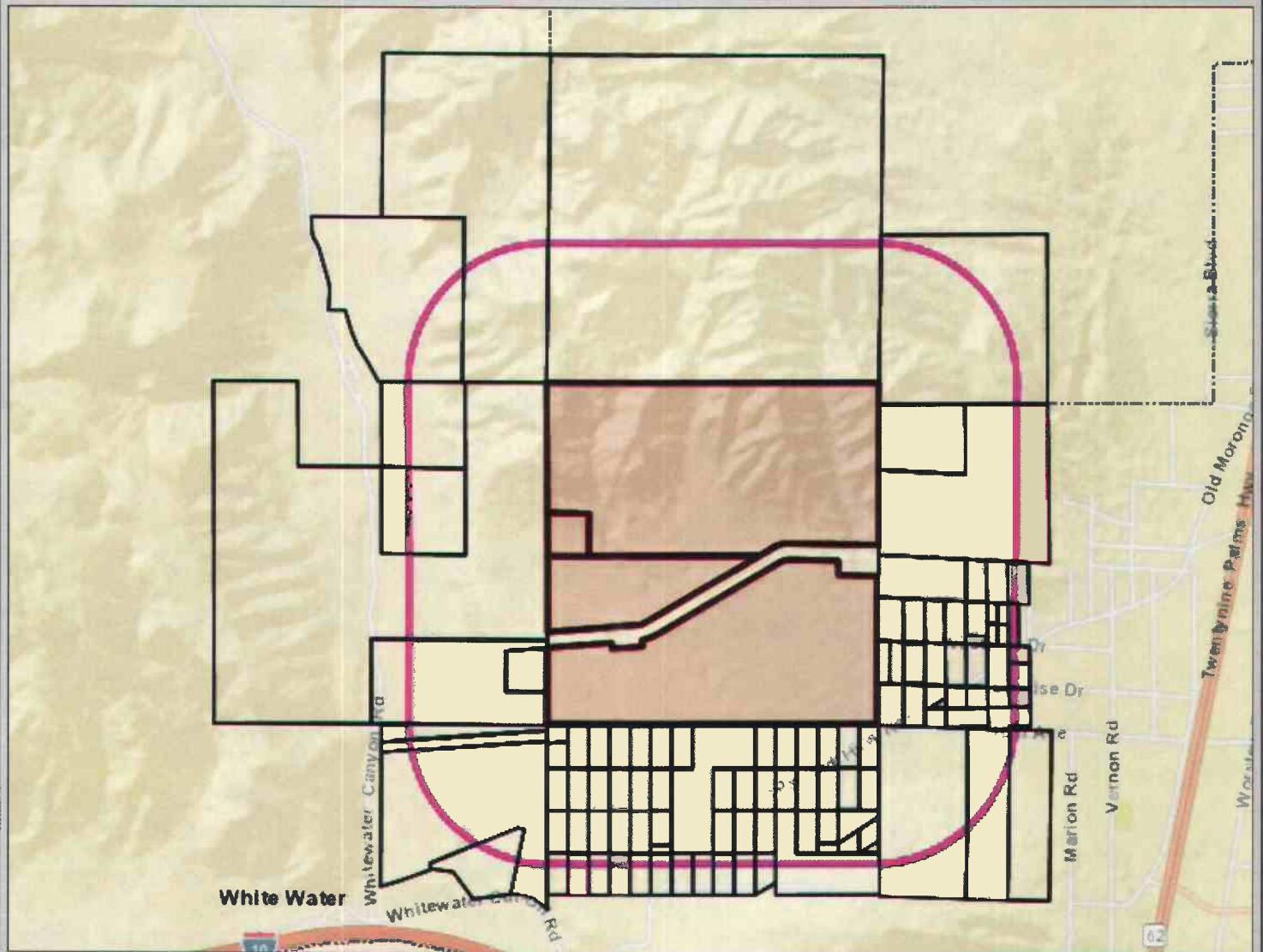
- A. PLANNING COMMISSION REPORT OF ACTIONS (pending)
- B. PLANNING COMMISSION STAFF REPORT 11-28-18
- C. PLANNING COMMISSION MEMORANDUM 11-28-18
- D. COMMENTS AND SUPPLMENTAL COMMENTS ADAMS BROADWELL JOSEPH
- E. RESPONSES TO COMMENTS DUDEK & ASSOCIATES, COX CASTLE NICHOLSON



Scott Bruckner  
12/5/2018

# Riverside County GIS Mailing Labels

WCS180001 / VAR180003 ( 1/2 Mile Buffer )



## Legend

- County Boundary
- Cities
- World Street Map

## Notes



0 3,009

6,019 Feet

\*IMPORTANT\* Maps and data are to be used for reference purposes only. Map features are approximate, and are not necessarily accurate to surveying or engineering standards. The County of Riverside makes no warranty or guarantee as to the content (the source is often third party), accuracy, timeliness, or completeness of any of the data provided, and assumes no legal responsibility for the information contained on this map. Any use of this product with respect to accuracy and precision shall be the sole responsibility of the user.

## PROPERTY OWNERS CERTIFICATION FORM

I, VINNIE NGUYEN certify that on October 19, 2018,

The attached property owners list was prepared by Riverside County GIS,

APN (s) or case numbers WCS180001 / VAR180003 for

Company or Individual's Name RCIT - GIS,

Distance buffered ½ Mile

Pursuant to application requirements furnished by the Riverside County Planning Department. Said list is a complete and true compilation of the owners of the subject property and all other property owners within 600 feet of the property involved, or if that area yields less than 25 different owners, all property owners within a notification area expanded to yield a minimum of 25 different owners, to a maximum notification area of 2,400 feet from the project boundaries, based upon the latest equalized assessment rolls. If the project is a subdivision with identified off-site access/improvements, said list includes a complete and true compilation of the names and mailing addresses of the owners of all property that is adjacent to the proposed off-site improvement/alignment.

I further certify that the information filed is true and correct to the best of my knowledge. I understand that incorrect or incomplete information may be grounds for rejection or denial of the application.

TITLE: GIS Analyst

ADDRESS: 4080 Lemon Street 9<sup>TH</sup> Floor

Riverside, Ca. 92502

TELEPHONE NUMBER (8 a.m. – 5 p.m.): (951) 955-8158

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PALM DESERT CA 92261

668070016  
KATHY ANN TESTER  
C/O C/O JOHN P MORRIS  
611 S PALM CANYON NO 170  
PALM SPRINGS CA 92264

668070014  
KATHY ANN TESTER  
C/O C/O JOHN MORRIS  
611 S PALM CANYON DR 170  
PALM SPRINGS CA 92264

668070031  
JOHN P MORRIS  
611 S PALM CANYON DR 170  
PALM SPRINGS CA 92264

668070028  
SOUTHERN CALIFORNIA EDISON CO  
C/O C/O C S REENDERS ASST COMPTROLLER  
P O BOX 800  
ROSEMEAD CA 91770

668070019  
JOSE ALFREDO SANCHEZ  
ANA SANCHEZ  
P O BOX 2291  
PALM DESERT CA 92261

668070020  
A HORIZON VENTURES INC  
P O BOX 1278  
PALM SPRINGS CA 92263

668070024  
MARIO S MARTINEZ  
MONICA C MARTINEZ  
47532 BISON CIR  
INDIO CA 92201

668070018  
WILSON ROBERT B ESTATE OF  
C/O C/O JAYNE W SOUZA  
355 ELLAMAR RD  
WEST PALM BEACH FL 33405

668070027  
SOUTHERN CALIFORNIA EDISON CO  
C/O C/O C S REENDERS ASST COMPTROLLER  
P O BOX 800  
ROSEMEAD CA 91770

668070017  
ROSA ACOSTA  
P O BOX 580058  
N PALM SPRINGS CA 92258

668070015  
SOUTHERN CALIF EDISON CO  
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KATHLEEN ANN GUZINSKI

315 CORREAS ST  
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516120063  
USA 516  
C/O NONE  
0  
CA. 0

516120038  
WIND ENERGY PARTNERSHIP  
707 ESPLANADE NO C  
REDONDO BEACH CA 90277

516120026  
WIND ENERGY PARTNERSHIP  
707 ESPLANADE NO C  
REDONDO BEACH CA 90277

516120027  
WIND ENERGY PARTNERSHIP  
707 ESPLANADE NO C  
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516030010  
METROPOLITAN WATER DIST OF SO CALIF  
P O BOX 54153  
LOS ANGELES CA 90054

516120029  
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707 ESPLANADE NO C  
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516120032  
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516120036  
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516120007  
COACHELLA VALLEY CONSERVATION  
73710 FRED WARING STE 200  
PALM DESERT CA 92260

516120012  
ROBIN SUE FLITT  
NORMAN FLITT  
C/O C/O NORMAN FLITT  
2 RED ROOF DR  
RYE BROOK NY 10573

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HALF MOON BAY CA 94019

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4621 RICHELIEU PL  
LOS ANGELES CA 90032

516120003  
JOHN A MEYERS  
MARGARET A MEYERS  
PAMELA D MEYERS

343 N ALFRED ST  
LOS ANGELES CA 90048

516030004  
JASON KEITH ETCHASON  
SEAN D ETCHASON  
KATHLEEN ANN GUZINSKI

516100008  
MWD  
C/O C/O ASSEST MANAGEMENT  
P O BOX 54153  
LOS ANGELES CA 90054

315 CORREAS ST  
HALF MOON BAY CA 94019

516120002  
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RICHARD T P CHOU  
KENNETH K Y TSE  
C/O KENNETH K Y TSE  
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SAN FRANCISCO CA 94121

516120062  
USA 516  
C/O NONE  
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516120034  
WIND ENERGY PARTNERSHIP  
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MARGARET A MEYERS  
PAMELA D MEYERS  
  
343 N ALFRED ST  
LOS ANGELES CA 90048

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PALM DESERT CA 92261

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C/O C S REENDERS ASST COMPTROLLER  
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ROSEMEAD CA 91770

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516120017  
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351 GUERRERO ST  
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516120022  
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REDONDO BEACH CA 90277

516110015  
STATE OF CALIF  
C/O STATE OF CALIF  
P O BOX 1799  
SACRAMENTO CA 95808

516120042  
WIND ENERGY PARTNERSHIP  
707 ESPLANADE NO C  
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516120057  
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12818 ERWIN ST  
NORTH HOLLYWOOD CA 91606

516120061  
USA 516  
C/O NONE  
0  
CA. 0

516120051  
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707 ESPLANADE NO C  
REDONDO BEACH CA 90277

516120020  
WIND ENERGY PARTNERSHIP  
707 ESPLANADE NO C  
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516120055  
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73710 FRED WARING STE 112  
PALM DESERT CA 92260

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73710 FRED WARING STE 205  
PALM DESERT CA 92260

516120025  
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707 ESPLANADE NO C  
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516120052  
IRENE LOHAYZA  
1808 W 260TH ST  
LOMITA CA 90717

516120048  
EARL CAMPUS  
GILBERT R CAMPOS  
PATRICIA A CAMPOS

516030008  
JASON KEITH ETCHASON  
KATHLEEN ANN GUZINSKI  
JAMES D ETCHASON  
  
315 CORREAS ST  
HALF MOON BAY CA 94019

516030013  
MWD  
C/O C/O GUY WALTERS  
700 N ALAMEDA ST NO 3  
LOS ANGELES CA 90012

516120060  
USA 516  
C/O NONE  
0  
CA. 0

516100007  
MWD  
C/O C/O ASSEST MANAGEMENT  
P O BOX 54153  
LOS ANGELES CA 90054

516120030  
WIND ENERGY PARTNERSHIP  
707 ESPLANADE NO C  
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516030001  
DESERT WATER AGENCY  
C/O C/O DAVID LUKER  
P O BOX 1710  
PALM SPRINGS CA 92263

516120004  
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MARGARET A MEYERS  
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612 S KEYSTONE AVE  
CLEARWATER FL 33756

516120037  
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REDONDO BEACH CA 90277

516120015  
WIND ENERGY PARTNERSHIP  
707 ESPLANADE NO C  
REDONDO BEACH CA 90277

516120064  
USA 516  
C/O NONE  
0  
CA. 0

516120035  
WIND ENERGY PARTNERSHIP  
707 ESPLANADE NO C  
REDONDO BEACH CA 90277

516120014  
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REDONDO BEACH CA 90277

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100 FOUR FALLS CORP CTR  
WEST CONSHOHOCKEN PA 19428

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WHITEWATER CA. 92282

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LUCERO RAYA  
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CABAZON CA 92230

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RITCHIE L MCPHAIL  
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NORTH PALM SPRINGS CA 92258

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ROSEMEAD CA 91770

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Painted Hills Wind, LLC  
11455 El Camino Real Ste. 160  
San Diego, CA 92130

Steve Battaglia  
Westwood Professional Services  
12701 Whitewater Drive Ste. 300  
Minnetonka, MN 55343

City of Desert Hot Springs  
Planning Department  
11-999 Palm Drive  
Desert Hot Springs, CA 92240

Sheila Sannadan  
Adams Broadwell Joseph & Cardozo  
601 Gateway Boulevard, Ste. 1000  
South San Francisco, CA 94080

Richard Drury  
Theresa Rettinghouse  
Lozeau Drury, LLC  
410 12<sup>th</sup> Street, Ste. 250  
Oakland, CA 94607



OFFICE OF THE  
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P.O. BOX 1147, 4080 LEMON STREET  
RIVERSIDE, CA 92502-1147  
PHONE: (951) 955-1060 FAX: (951) 955-1071

**KECIA HARPER**  
Clerk of the Board of Supervisors

**KIMBERLY A. RECTOR**  
Assistant Clerk of the Board

January 17, 2019

THE PRESS ENTERPRISE  
ATTN: LEGALS  
P.O. BOX 792  
RIVERSIDE, CA 92501

PH : (951) 368-9229  
E-MAIL: [legals@pe.com](mailto:legals@pe.com)

RE: NOTICE OF PUBLIC HEARING: Appeal of WCS 180001

To Whom It May Concern:

Attached is a copy for publication in your newspaper for **One (1) time on Thursday, January 24, 2019.**

We require your affidavit of publication immediately upon completion of the last publication.

Your invoice must be submitted to this office, WITH TWO CLIPPINGS OF THE PUBLICATION.

**NOTE:** PLEASE COMPOSE THIS PUBLICATION INTO A SINGLE COLUMN FORMAT.

Thank you in advance for your assistance and expertise.

Sincerely,

*Stephanie Cribbs*

Board Assistant to:  
KECIA HARPER, CLERK OF THE BOARD

**NOTICE OF PUBLIC HEARING BEFORE THE BOARD OF SUPERVISORS OF RIVERSIDE COUNTY ON  
AN APPEAL OF A COMMERCIAL WECS PERMIT/VARIANCE CASE IN THE WESTERN COACHELLA  
VALLEY AREA, WHITEWATER ZONING AREA, FIFTH SUPERVISORIAL DISTRICT**

NOTICE IS HEREBY GIVEN that a public hearing at which all interested persons will be heard, will be held before the Board of Supervisors of Riverside County, California, on the 1<sup>st</sup> Floor Board Chambers, County Administrative Center, 4080 Lemon Street, Riverside, on **Tuesday, February 5, 2019 at 10:00 A.M.** or as soon as possible thereafter, to consider the appeal on the Planning Commission's approval of **Commercial WECS Permit No. 180001** which proposes to decommission and remove approximately 291 existing commercial wind turbines and install up to 14 new commercial wind turbines up to 499-feet in height with a per turbine generating capacity of between 2.0 megawatts (MW) and 4.2 MW on land within the Wind Energy Resource (W-E) Zone. The project also proposes to install ancillary equipment, including three (3) temporary, guyed meteorological towers up to 309-feet in height, two (2) permanent, self-supported meteorological towers up to 309-feet in height, a temporary expansion of an existing laydown yard, construction of new temporary and permanent internal access roads, and a new electrical collection system integrating the proposed wind turbines to the electrical grid via one of two options. Option 1 would include the installation of new 12-kilovolt (kV) underground collector circuits from each wind turbine to an existing, on-site, SCE-owned 12 kV distribution system and 12 kV to 115 kV collector substation. Option 2 would include the installation of new 34.5 kV underground collector circuits from each wind turbine to a new Project-owned 34.5 kV to 115 kV collector substation that would connect to the electric grid on-site by way of a new, Project-owned 115 kV tie line. **Variance Case No. 180003** proposes reductions in WECS safety setbacks from 1.1 times total WECS height from lot lines abutting the Colorado River Aqueduct to between 325 feet and 515 feet, reduce WECS safety setbacks from 1.1 times total WECS height to 0 feet from all internal lot lines associated with W-E zoned land, reduce WECS safety setbacks from 1.25 time total WECS height to 555 feet from the northern boundary of the Southern California Edison transmission line easement located along the southern lot line of APN 516-030-014 and eliminate wind access setbacks along the northern, southern and eastern lot lines of the Project parcels. The project is located in Painted Hills north of Interstate 10, west of Highway 62; more specifically, north of 16<sup>th</sup> Avenue, east of Whitewater Canyon Road, and west of Windhaven Road in the Fifth Supervisorial District.

The Planning Commission recommended that the Board of Supervisors approve the project and adopt a Mitigated Negative Declaration for **Environmental Assessment No. 180059**.

The project case file may be viewed from the date of this notice until the public hearing, Monday through Friday, from 8:00 a.m. to 5:00 p.m. at the Riverside County Planning Department at 4080 Lemon Street, 12th Floor, Riverside, California 92501.

**FOR FURTHER INFORMATION REGARDING THIS PROJECT, PLEASE CONTACT JAY OLIVAS, PROJECT PLANNER, AT (760) 863-7050 OR EMAIL [jolivas@rivco.org](mailto:jolivas@rivco.org)**

Any person wishing to testify in support of or in opposition to the project may do so in writing between the date of this notice and the public hearing, or may appear and be heard at the time and place noted above. All written comments received prior to the public hearing will be submitted to the Board of Supervisors and the Board of Supervisors will consider such comments, in addition to any oral testimony, before making a decision on the project.

If you challenge the above item in court, you may be limited to raising only those issues you or someone else raised at the public hearing described in this notice, or in written correspondence to the Planning Commission or Board of Supervisors at, or prior to, the public hearing. Be advised that as a result of the public hearing and the consideration of all public comment, written and oral, the Board of Supervisors may amend, in whole or in part, the project and/or the related environmental document. Accordingly, the designations, development standards, design or improvements, or any properties or lands within the boundaries of the project, may be changed in a way other than specifically proposed.

Alternative formats available upon request to individuals with disabilities. If you require reasonable accommodation, please contact Clerk of the Board at (951) 955-1063, at least 72 hours prior to hearing.

Please send all written correspondence to: Clerk of the Board, 4080 Lemon Street, 1st Floor, Post Office Box 1147, Riverside, CA 92502-1147 or email [cob@rivco.org](mailto:cob@rivco.org)

Dated: January 17, 2019

Kecia Harper, Clerk of the Board  
By: Stephanie Cribbs, Board Assistant

# **CERTIFICATE OF POSTING**

(Original copy, duly executed, must be attached to  
the original document at the time of filing)

I, Stephanie Cribbs, Board Assistant to Kecia Harper, Clerk of the Board of Supervisors, for the County of Riverside, do hereby certify that I am not a party to the within action or proceeding; that on January 17, 2019, I forwarded to Riverside County Clerk & Recorder's Office a copy of the following document:

## **NOTICE OF PUBLIC HEARING**

Appeal of WECS 180001

to be posted in the office of the County Clerk at 2724 Gateway Drive, Riverside, California 92507. Upon completion of posting, the County Clerk will provide the required certification of posting.

**Board Agenda Date:** February 5, 2019 @ 10:00 a.m.

SIGNATURE: *Stephanie Cribbs* DATE: January 17, 2019  
Stephanie Cribbs

# **CERTIFICATE OF MAILING**

(Original copy, duly executed, must be attached to  
the original document at the time of filing)

I, Stephanie Cribbs, Board Assistant, for the County of Riverside, do hereby certify that I am not a party to the within action or proceeding; that on January 17, 2019, I mailed a copy of the following document:

## **NOTICE OF PUBLIC HEARING**

Appeal of WECS 180001

to the parties listed in the attached labels, by depositing said copy with postage thereon fully prepaid, in the United States Post Office, 3890 Orange St., Riverside, California, 92501.

**Board Agenda Date:** February 5, 2019 @ 10:00 a.m.

SIGNATURE: *Stephanie Cribbs* DATE: *January 17, 2019*  
Stephanie Cribbs



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Publication(s): The Press-Enterprise

### PROOF OF PUBLICATION OF

Ad Desc.: Appeal WCS 180001 /

I am a citizen of the United States. I am over the age of eighteen years and not a party to or interested in the above entitled matter. I am an authorized representative of THE PRESS-ENTERPRISE, a newspaper in general circulation, printed and published daily in the County of Riverside, and which newspaper has been adjudicated a newspaper of general circulation by the Superior Court of the County of Riverside, State of California, under date of April 25, 1952, Case Number 54446, under date of March 29, 1957, Case Number 65673, under date of August 25, 1995, Case Number 267864, and under date of September 16, 2013, Case Number RIC 1309013; that the notice, of which the annexed is a printed copy, has been published in said newspaper in accordance with the instructions of the person(s) requesting publication, and not in any supplement thereof on the following dates, to wit:

01/24/2019

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Date: January 24, 2019  
At: Riverside, California



Legal Advertising Representative, The Press-Enterprise

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#### NOTICE OF PUBLIC HEARING BEFORE THE BOARD OF SUPERVISORS OF RIVERSIDE COUNTY ON AN APPEAL OF A COMMERCIAL WECS PERMIT/VARIANCE CASE IN THE WESTERN COACHELLA VALLEY AREA, WHITEWATER ZONING AREA, FIFTH SUPERVISORIAL DISTRICT

NOTICE IS HEREBY GIVEN that a public hearing at which all interested persons will be heard, will be held before the Board of Supervisors of Riverside County, California, on the 1st Floor Board Chambers, County Administrative Center, 4080 Lemon Street, Riverside, on **Tuesday, February 5, 2019 at 10:00 A.M. or as soon as possible thereafter**, to consider the appeal on the Planning Commission's approval of **Commercial WECS Permit No. 180001** which proposes to decommission and remove approximately 291 existing commercial wind turbines and install up to 14 new commercial wind turbines up to 499-feet in height with a per turbine generating capacity of between 2.0 megawatts (MW) and 4.2 MW on land within the Wind Energy Resource (W-E) Zone. The project also proposes to install ancillary equipment, including three (3) temporary guyed meteorological towers up to 309-feet in height, two (2) permanent, self-supported meteorological towers up to 309-feet in height, a temporary expansion of an existing laydown yard, construction of new temporary and permanent internal access roads, and a new electrical collection system integrating the proposed wind turbines to the electrical grid via one of two options. Option 1 would include the installation of new 12-kilovolt (kV) underground collector circuits from each wind turbine to an existing, on-site, SCE-owned 12 kV distribution system and 12 kV to 115 kV collector substation. Option 2 would include the installation of new 34.5 kV underground collector circuits from each wind turbine to a new Project-owned 34.5 kV to 115 kV collector substation that would connect to the electric grid on-site by way of a new, Project-owned 115 kV tie line. **Variance Case No. 180003** proposes reductions in WECS safety setbacks from 1.1 times total WECS height from lot lines abutting the Colorado River Aqueduct to between 325 feet and 515 feet, reduce WECS safety setbacks from 1.1 times total WECS height to 0 feet from all internal lot lines associated with W-E zoned land, reduce WECS safety setbacks from 1.25 times total WECS height to 555 feet from the northern boundary of the Southern California Edison transmission line easement located along the southern lot line of APN 516-030-014 and eliminate wind access setbacks along the northern, southern and eastern lot lines of the Project parcels. The project is located in Painted Hills north of Interstate 10, west of Highway 62; more specifically, north of 16th Avenue, east of Whitewater Canyon Road, and west of Windhaven Road in the Fifth Supervisorial District.

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FOR FURTHER INFORMATION REGARDING THIS PROJECT, PLEASE CONTACT JAY OLIVAS, PROJECT PLANNER, AT (760) 863-7050 OR EMAIL [jolivas@rivco.org](mailto:jolivas@rivco.org)

Any person wishing to testify in support of or in opposition to the project may do so in writing between the date of this notice and the public hearing, or may appear and be heard at the time and place noted above. All written comments received prior to the public hearing will be submitted to the Board of Supervisors and the Board of Supervisors will consider such comments, in addition to any oral testimony, before making a decision on the project.

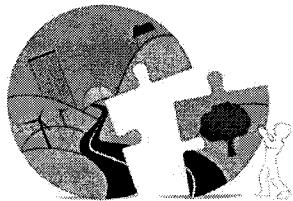
If you challenge the above item in court, you may be limited to raising only those issues you or someone else raised at the public hearing described in this notice, or in written correspondence to the Planning Commission or Board of Supervisors at, or prior to, the public hearing. Be advised that as a result of the public hearing and the consideration of all public comment, written and oral, the Board of Supervisors may amend, in whole or in part, the project and/or the related environmental document. Accordingly, the designations, development standards, design or improvements, or any properties or lands within the boundaries of the project, may be changed in a way other than specifically proposed.

Alternative formats available upon request to individuals with disabilities. If you require reasonable accommodation, please contact Clerk of the Board at (951) 955-1063, at least 72 hours prior to hearing.

Please send all written correspondence to: Clerk of the Board, 4080 Lemon Street, 1st Floor, Post Office Box 1147, Riverside, CA 92502-1147 or email [cob@rivco.org](mailto:cob@rivco.org)

Dated: January 17, 2019      Kecia Harper, Clerk of the Board  
By: Stephanie Cribbs, Board Assistant

1/24



# RIVERSIDE COUNTY

## PLANNING DEPARTMENT

Steve Weiss, AICP  
Planning Director

### APPLICATION FOR APPEAL

Commercial WECS Permit #180001/Variance Case No. 180003 & the ADOPTION OF THE MND

Appeal of Application Case No(s): FOR ENVIRONMENTAL ASSESSMENT #1800059 (CEQ1800059)

*List all concurrent applications*

Name of Advisory Agency: Riverside County Planning Commission

Date of the decision or action: November 28, 2018

Appellant's Name: CA Unions for Reliable Energy, Charles McDaniel, Kasey Woolridge-Caspersen, Elmer Diaz, William Pieper, Juan Dominguez, c/o Kyle Jones

Contact Person: Kyle Jones, Adams Broadwell E-Mail: kjones@adamsbroadwell.com

Joseph & Cardozo

Mailing Address: 520 Capitol Mall, Suite 350

Sacramento Street CA 95814  
City State ZIP

Daytime Phone No: (916) 444-6201 Fax No: (916) 444-6209

ADVISORY AGENCY WHOSE ACTION IS BEING APPEALED	HEARING BODY TO WHICH APPEAL IS BEING MADE	APPEAL TO BE FILED WITH
Planning Director	<ul style="list-style-type: none"><li><u>Board of Supervisors</u> for: Temporary Outdoor Events, Substantial Conformance Determination for WECS, Variances, and Fast Track Plot Plans.</li><li><u>Planning Commission</u> for: all other decisions.</li><li><u>County Hearing Officer</u> for: Reasonable Accommodation Request</li></ul>	<ul style="list-style-type: none"><li><u>Clerk of The Board</u> for: Appeals before the Board of Supervisors.</li><li><u>Planning Department</u> for: Appeals before the Planning Commission and County Hearing Officer.</li></ul>
Planning Commission	<u>Board of Supervisors</u>	<u>Clerk of the Board of Supervisors</u>

RIVERSIDE COUNTY  
CLERK OF THE BOARD  
OF SUPERVISORS

PAID

DA DATE: 12/17/2018  
AP AMOUNT: 983.28  
F REC'D BY: Sue Maxwell

Riverside Office · 4080 Lemon Street, 12th Floor  
P.O. Box 1409, Riverside, California 92502-1409  
(951) 955-3200 · Fax (951) 955-1811

Desert Office · 77-588 El Duna Court, Suite H  
Palm Desert, California 92211  
(760) 863-8277 · Fax (760) 863-7555

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## APPLICATION FOR APPEAL

<b>TYPE OF CASES BEING APPEALED</b>	<b>FILING DEADLINE</b>
<ul style="list-style-type: none"><li>• Change of Zone denied by the Planning Commission</li><li>• Commercial WECS Permit</li><li>• Conditional Use Permit</li><li>• Hazardous Waste Facility Siting Permit</li><li>• Public Use Permit</li><li>• Variance</li><li>• Specific Plan denied by the Planning Commission</li><li>• Substantial Conformance Determination for WECS Permit</li><li>• Surface Mining and Reclamation Permit</li></ul>	Within 10 days after the notice of decision appears on the Board of Supervisors Agenda.
<ul style="list-style-type: none"><li>• Land Division (Tentative Tract Map or Tentative Parcel Map)</li><li>• Revised Tentative Map</li><li>• Minor Change to Tentative Map</li><li>• Extension of Time for Land Division (not vesting map)</li></ul>	Within 10 days after the notice of decision appears on the Board of Supervisor's Agenda.
<ul style="list-style-type: none"><li>• Extension of Time for Vesting Tentative Map</li></ul>	Within 15 days after the notice of decision appears on the Board of Supervisor's agenda.
<ul style="list-style-type: none"><li>• General Plan or Specific Plan Consistency Determination</li><li>• Temporary Outdoor Event</li></ul>	Within 10 days after date of mailing or hand delivery of decision of the Planning Director.
<ul style="list-style-type: none"><li>• Environmental Impact Report</li></ul>	Within 10 days of receipt of project sponsor notification of Planning Director determination, or within 7 days after notice of decision by Planning Commission appears on the Board's agenda.
<ul style="list-style-type: none"><li>• Plot Plan</li><li>Temporary Use Permit</li><li>Accessory WECS Permit</li></ul>	Within 10 calendar days after the date of mailing of the decision.
<ul style="list-style-type: none"><li>• Letter of Substantial Conformance for Specific Plan</li></ul>	Within 7 days after the notice of decision appears on the Board of Supervisor's agenda.
<ul style="list-style-type: none"><li>• Revised Permit</li></ul>	Same appeal deadline as for original permit.
<ul style="list-style-type: none"><li>• Certificate of Compliance</li><li>Tree Removal Permit</li><li>Reasonable Accommodation Request</li></ul>	Within 10 days after the date of the decision by the Planning Director.
<ul style="list-style-type: none"><li>• Revocation of Variances and Permits</li></ul>	Within 10 days following the mailing of the notice of revocation by the Director of Building and Safety, or within 10-days after the notice of decision of the Planning Commission appears on the Board of Supervisor's agenda.

### STATE THE REASONS FOR APPEAL.

Clearly state the basis for the appeal and include any supporting evidence if applicable. If appealing one or more specific conditions of approval, indicate the number of the specific condition(s) being protested. In addition, please include all actions on related cases, which might be affected if the appeal is granted. This will allow all changes to be advertised and modified at the same time. AN APPEAL OF ONE OR MORE CONDITIONS OF APPROVAL SHALL BE DEEMED AS AN APPEAL OF THE ACTION AS A WHOLE,

## APPLICATION FOR APPEAL

AND THE APPEAL BODY MAY APPROVE OR DENY THE ENTIRE MATTER, AND CHANGE ANY OR ALL OF THE CONDITIONS OF APPROVAL.

See attached basis for appeal.

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Use additional sheets if necessary.

Kyle Jones

PRINTED NAME OF APPELLANT



SIGNATURE OF APPELLANT

12/14/2018

DATE

### THE APPEAL FILING PACKAGE MUST CONSIST OF THE FOLLOWING:

1. One completed and signed Appeal application form.
2. Public Hearing Notice Label Requirements mailing address labels for notification of the appeal hearing.<sup>1</sup>
3. All appropriate filing fees.  
(The Base fee, plus other fees specifically for the Department of Building and Safety, Fire Department, Flood Control District and/or Transportation Department conditions, if applicable).

Y:\Current Planning\LMS Replacement\Condensed P.D. Application Forms\295-1013 Appeal Form.docx  
Created: 07/08/2015 Revised: 06/21/2016

<sup>1</sup> Comply with the Public Hearing Notice Label Requirements (Form 295-1051)

ADAMS BROADWELL JOSEPH & CARDOZO  
A PROFESSIONAL CORPORATION  
1225 8TH STREET, SUITE 550  
SACRAMENTO, CA 95814  
PH. (916) 444-6201

1118

11-4288/1210 4321  
6290111053

December 13, 2018

Date

© HARLAND 2001  
Pay to the  
Order of

County of Riverside

\$ 983.28

Nine Hundred Eighty-Three 28/100 C

Dollars



Wells Fargo Bank, N.A.  
California  
wellsfargo.com



A handwritten signature in black ink, appearing to read "Riverside County, California".

For 4449 - Appeal Fee

1210428820 6290111053 01118



**COUNTY OF RIVERSIDE  
TRANSPORTATION LAND MANAGEMENT AGENCY  
PERMIT ASSISTANCE CENTER**

Receipt Number: RI-R18064841	Amount: \$983.28	12/17/2018 9:50 am
Payment Method: Check	Notations: 1118	Payment Status: Complete
		Init: JP

Permit No(s): WCS180001

Parcel Number: 516030004

Site Address: 0 UNASSIGNED

This Payment: \$983.28

Permit No	Account Code	Description	Amount
WCS180001	230168-20006-3130100000	0241 - COMP TRANS PLAN APPEAL	\$28.00
WCS180001	777520-10000-1000100000	0330 - CLERK OF THE BOARD APPEAL	\$26.00
WCS180001	772210-20203-3100200000	0500 - LMS SURCHARGE APPEAL	\$19.28
WCS180001	777180-10000-3120100000	0660 - COMBINED DEPOSIT APPEAL	\$910.00
<b>Total:</b>			<b>\$983.28</b>

Overpayments of less than \$5.00 will not be refunded!

Additional information at [www.rctlma.org](http://www.rctlma.org)

Riverside Permit Assistance Center  
4080 Lemon St. 9th Floor  
Riverside, CA 92501

Desert Permit Assistance Center  
77588 El Duna Ct Suite H  
Palm Desert, CA 92211

**PUBLIC HEARING NOTICE LABEL REQUIREMENTS**

---

**PUBLIC HEARING NOTICE LABELS CERTIFICATION FORM**

I, Kyle C. Jones, Print name certify that on 12/13/18,  
the attached property owner's list was prepared by: Adams Broadwell Joseph & Cardozo for the following project, CEQ 1800059,  
Print Company Name and/or Individual's Name Date COMMERCIAL WELCS PERMIT #180001  
Variance CASE #180003 Project case number(s)

using a radius distance of 2640 feet, pursuant to application requirements furnished by the Riverside County Planning Department. Said list is a complete and true compilation of the project applicant, the applicant's engineer/representative, if any, the owner(s) of the subject property, the school district or districts within whose boundary the subject project is located, every City within one mile of the subject property or within whose sphere of influence the subject property is located, if any, and, all other property owners within a 600 foot radius around the subject property, and all contiguously owned properties, if any, or if that area yields less than 25 different owners, all property owners within a notification area expanded to yield a minimum of 25 different owners, to a maximum area of 2,400 feet from the project boundaries, based upon the latest equalized assessment rolls. If the property is a subdivision with identified off-site access/improvements, said list includes a complete and true compilation of the names and mailing addresses of the owners of all the property that is adjacent to the proposed off-site improvement/alignment.

I further certify that the information field is true and correct to the best of my knowledge.

Name: Kyle Jones

Title/Registration: Associate

Address: 520 Capitol Mall

Address: Suite 350

City: Sacramento State: CA Zip: 95814

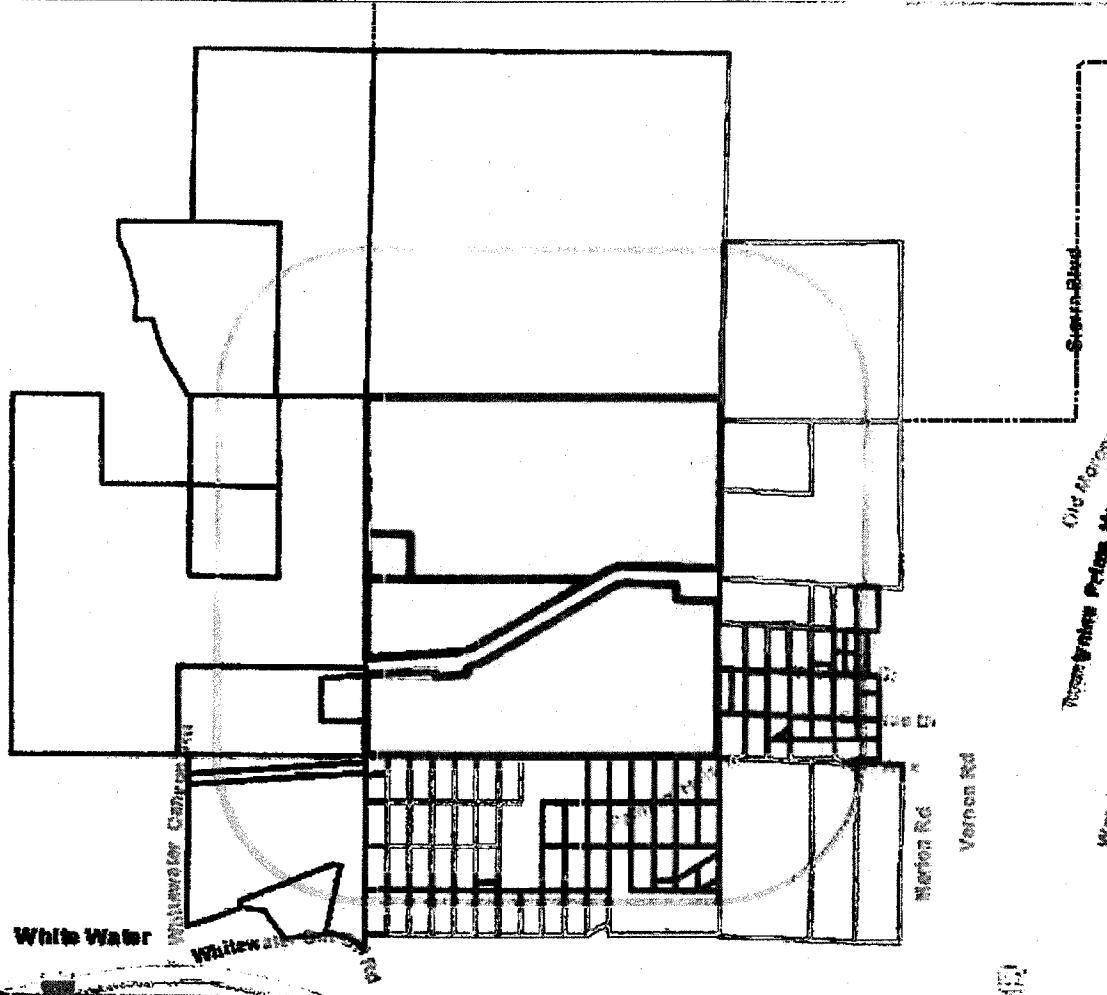
Telephone No.: (916) 444-6201 Fax No.: (916) 444-6209

E-Mail: KJones@adamsBroadwell.com

Case No.: CEQ 1800059

## Riverside County GIS Mailing Labels

WCS180001 / VAR180003 ( 1/2 Mile Buffer )



### Legend

- County Boundary
- Cities
- World Street Map

### Notes

**"IMPORTANT"** Maps and data are to be used for reference purposes only. Map features are approximate, and are not necessarily accurate to surveying or engineering standards. The County of Riverside makes no warranty or guarantee as to the content (the source is often third party), accuracy, timeliness, or completeness of any of the data provided, and assumes no legal responsibility for the information contained on this map. Any use of this product with respect to accuracy and precision shall be the sole responsibility of the user.



0

3,009

6,019 Feet

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c/o John P. Morris  
611 S. Palm Canyon Drive  
No. 170  
Palm Springs, CA 92264

Friends of the Desert Mountains  
P.O. Box 1281  
Palm Desert, CA 92261

John P. Morris  
611 S. Palm Canyon Drive  
No. 170  
Palm Springs, CA 92264

Southern California Edison Co.  
c/o: C S Reenders Asst. Comptroller  
P.O. Box 800  
Rosemead, CA 91770

Jose Alfredo Sanchez  
Ann Sanchez  
P.O. Box 2291  
Palm Desert, CA 92261

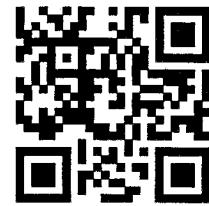
A Horizon Ventures Inc.  
P.O. Box 1278  
Palm Springs, CA 92263

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2	Diseña la plantilla utilizando el código del producto.	Créez en utilisant le numéro de gabarit pour ce produit.	Modifiez le réglage de l'imprimante à "Etiquettes" et imprimez.	Change printer settings to "Labels" and print.
3	Pruéba la impresión en un papel normal.	Faites un test d'impression sur du papier ordinaire.	Modifiez le réglage de l'imprimante à "Etiquettes" et imprimez.	4
4	Cambia la configuración de la impresora a "Etiquetas" o etiquetas de impresión.	Modifiez le réglage de l'imprimante à "Etiquettes" et imprimez.	Visita <a href="http://avery.ca/aide">avery.ca/aide</a>	Visita <a href="http://avery.ca/help">avery.ca/help</a>

Mario S. Martinez  
Monica C. Martinez  
47532 Bison Circle  
Indio, CA 92201

Estate of Robert B. Wilson  
c/o Jayne W. Souza  
355 Ellamar Road  
West Palm Beach, FL 33405

Rosa Acosta  
P.O. Box 580058  
N. Palm Springs, CA 92258

Wind Energy Partnership  
707 Esplanade, No. C  
Redondo Beach, CA 90277

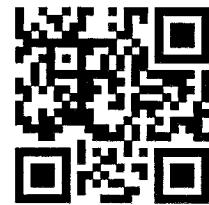
Jason Keith Etchason  
Sean D. Etchason  
Kathleen Correas Street  
Half Moon Bay, CA 94019

Metropolitan Water District of  
Southern California  
P.O. Box 54153  
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2	Créez en utilisant le numéro de gabarit pour ce produit.	Diseña la plantilla utilizando el código del producto.	Design using the template number for this product.
3	Faites un test d'impression sur du papier ordinaire.	Pruéba la impresión en un papel normal.	Test print on plain paper.
4	Modifiez le réglage de l'imprimante à "Étiquettes" et imprimez.	Cambia la configuración de la impresora a "Etiquetas" o etiquetas e imprime.	Change printer settings to "Labels" and print.
<b>?Necesitas ayuda?</b>		<b>Besoin d'aide?</b>	<b>Visit <a href="http://avery.ca/aide">avery.ca/aide</a></b>
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Suite 200  
Palm Desert, CA 92260

Robin Sue Flitt  
Norman Flitt  
c/o Norma Flitt  
2 Red Roof Drive  
Rye Brook, NY 10573

Irene Lohayza  
1808 W. 260<sup>th</sup> Street  
Lomita, CA 90717

Earl Campos  
Gilbert R. Campos  
Patricia A. Campos  
1421 Canyon Pine Road  
Beaumont, CA 92223

MWD  
c/o Guy Walters  
700 N. Alameda Street  
No. 3  
Los Angeles, CA 90012

MWD  
c/o Asset Management  
P.O. Box 54153  
Los Angeles, CA 90054

Desert Water Agency  
c/o David Luker  
P.O. Box 1710  
Palm Springs, CA 92263

John A. Meyers  
Margaret A. Meyers  
Pamela D. Meyers  
343 N. Alfred Street  
Los Angeles, CA 90048

Mary Ann Stumbers  
612 S. Keystone Avenue  
Clearwater, FL 33756

Eva H. Evans  
Jorja L. Jones  
Fredda K. Evans  
901 Montana Avenue  
No. B  
Santa Monica, CA 90403

Denise A. Danne  
351 Guerrero Street  
San Francisco, CA 94103

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2	Design using the template number for this product.	Test print on plain paper. Prueba la impresión en un papel normal.	Faites un test d'impression sur du papier ordinaire. Prueba la impresión en un papel normal.	Modifiez le réglage de l'imprimante à "Étiquettes" o etiquetas de impresión. Cambia la configuración de la impresora a "Etiquetas".
3	Change printer settings to "Labels" and print.	Print on plain paper.	Prueba la impresión en un papel normal.	Modifiez le réglage de l'imprimante à "Étiquettes" o etiquetas de impresión. Cambia la configuración de la impresora a "Etiquetas".
4	Visit Avery.com/help ?Necesitas ayuda?	Visit <a href="http://avery.ca/aide">avery.ca/aide</a> Visita <a href="http://avery.com/ayuda">avery.com/ayuda</a>	Be soin d'aide?	Visiter <a href="http://avery.ca/aide">avery.ca/aide</a> Visita <a href="http://avery.com/ayuda">avery.com/ayuda</a>

Cathy Romero  
Yolanda Marie Rustad  
Marion B. Demett  
c/o: Marion B. Demett  
66025 Avenida Ladera  
Desert Hot Springs, CA 92240

Blair Fickett  
P.O. Box 404  
FawnSkin, CA 92333

Clarence Jacobus  
2308 W. Love Lane  
Crete, IL 60417

PHWD Affiliate  
c/o Suite 215  
100 Four Falls Corp. Center  
West Conshohocken, PA 19428

Richard Leon  
15303 Star Lane  
Whitewater, CA 92282

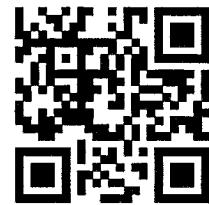
Angel Raya  
Lucero Raya  
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3	Prueba la impresión en un papel normal.	Faites un test d'impression sur du papier ordinaire.	Faites un test d'impression sur du papier normal.	Modify the print settings to "Labels" and print.	Visita avery.ca/aide
4	Cambia la configuración de impresión a etiquetas.	Modifiez les paramètres d'impression en étiquettes.	Modifiez le réglage de l'impression en étiquettes.	Scan for access to printing tips, product information, help and more using your smartphone or tablet.	Scannez pour avoir accès aux conseils d'impression, l'information produit de l'aide et plus à l'aide de votre smartphone ou tablette.

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12818 Erwin Street  
North Hollywood, CA 91606

John E. Kavanaugh  
9085 Las Tunas  
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Esperanza Sanchez  
4621 Richelieu Place  
Los Angeles, CA 90032

Bessie Chen Tse  
Richard T.P. Chou  
Kenneth K.Y. Tse  
c/o Kenneth K.Y. Tse  
370 28<sup>th</sup> Avenue  
San Francisco, CA 94121

USA 668  
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