APPENDIX C

CHI-SQUARE TEST STATISTICS AND DERIVED MEASURES OF EFFECT FOR VARIOUS BIRDS

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CHI-SQUARE TEST STATISTICS AND DERIVED MEASURES OF EFFECT FOR VARIOUS BIRDS

Table C1. Chi-square test statistics and derived measures of effect for golden eagles.

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
Turbine model [t]				
Micon	2	3.84	0.52	-3
Bonus	17	15.18	1.12	3
Danwin	0	0.28	0	-1
Flowind	0	2.21	0	-4
Windmatic	0	0.62	0	-1
Enertech	2	2.81	0.71	-2
KCS-56	30	27.30	1.10	5
KVS-33	0	0.57	0	-1
Howden	2	0.24	8.20	3
Nordtank	1	0.89	1.12	0
W.E.G.	0	0.06	0	0
Rated turbine power (kW) [t]				
40	2	2.81	0.71	-2
65	3	5.35	0.56	-4
100	30	27.30	1.10	5
110	0	0.28	0	-1
120	10	10.04	1.00	0
150	7	7.02	1.00	0
250	0	0.40	0	-1
330	2	0.24	8.20	3
400	0	0.57	0	-1
Rotor diameter (m)				
13.5 – –14.8	2	3.43	0.58	-3
16.0	3	4.73	0.63	-3
17.2 – –17.8	30	29.18	1.03	2
19.1 – –19.5	10	10.65	0.94	-1
23.4 – –25.2	7	5.20	1.35	3
31.4 – –33.2	2	0.81	2.47	2
Blade tip speed (kph) [t]				
136.77	0	0.62	0	-1
143.20	1	0.89	1.12	0
146.42	10	10.04	1.00	0
148.03	2	2.81	0.71	-2
149.64	2	3.84	0.52	-3
173.77	7	5.14	1.36	3
180.21	0	0.57	0	-1
193.08	0	2.15	0	-4
194.69	0	0.34	0	-1

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
212.39	0	0.06	0	0
239.74	2	0.24	8.20	3
246.18	30	27.30	1.10	5
Blade tip speed (kph)				
137.77 – –149.64	15	18.20	0.82	-6
173.77 – –194.69	7	8.20	0.85	-2
212.39 – –246.18	32	27.60	1.16	8
Seconds/sweep at blade tip				
0.272583	30	27.30	1.10	5
0.343807	2	2.81	0.71	-2
0.374882	0	0.28	0	-1
0.403091	2	3.84	0.52	-3
0.407945	0	0.62	0	-1
0.421219	1	0.89	1.12	0
0.447299	0	0.06	0	0
0.493765	2	0.24	8.20	3
0.502071	10	10.04	1	0
0.503748	0	1.87	0	-3
0.507659	7	5.14	1.36	3
0.554769	0	0.34	0	-1
0.694529	0	0.57	0	-1
Seconds/sweep at blade tip				
0.2726	30	27.30	1.10	5
0.3438 – –0.4938	7	8.74	0.80	-3
0.5021 – –0.6945	17	17.96	0.95	-2
Rotor plane (m^2) swept/s				
1498.8	2	2.81	0.71	-2
1518.1	0	0.62	0	-1
1660.5	0	1.87	0	-3
1718.4	1	0.89	1.12	0
1795.7	2	3.84	0.52	-3
1859.3	0	0.34	0	-1
2141.4	10	10.04	1	0
2780.4	0	0.28	0	-1
3049.7	7	5.14	1.36	3
3286.5	30	27.30	1.10	5
4014.2	0	0.06	0	0
4487.2	0	0.57	0	-1
5645.9	2	0.24	8.20	3
Rotor plane (m^2) swept/s				
1499 - –1859	5	10.38	0.48	-10
2141	10	10.04	1.00	0
2780 - –3287	37	32.72	1.13	8
4014 - –5646	2	0.87	2.31	2
Tower type				
Vertical axis	0	2.21	0	-4
Tubular	22	20.53	1.07	3

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
Lattice	32	31.26	1.02	1
Tower height (m) [t]				
14.0	0	1.41	0	-3
18.5	31	20.00	1.55	20
24.0	0	0.28	0	-1
24.6	15	23.62	0.64	-16
25.2	7	5.11	1.37	4
29.5	0	1.87	0	-3
32.3	0	0.34	0	-1
36.9	0	0.04	0	0
43.1	1	1.33	0.75	-1
Tower height (m) *				
14.0	0	1.41	0	-3
18.5	31	20.00	1.55	20
24.0 – –25.2	22	29.00	0.76	-13
29.5 – –32.3	0	2.21	0	-4
36.9 – –43.1	1	1.38	0.73	-1
Rotor orientation to wind *				
Faces wind	22	29.80	0.74	-14
Away from wind	32	21.99	1.46	19
Vertical axis	0	2.21	0	-4
Blade color scheme				
White	51	52.71	0.97	-3
Black stripes	0	0.22	0	0
Red stripes	0	0.05	0	0
Red tips	1	0.46	2.17	1
Green tips	2	0.57	3.54	3
Perch guard [t]				
None	52	53.41	0.97	-3
Wire netting	2	0.59	3.41	3
Derelict turbines				
Operating and away from derelict	49	49.80	0.98	-1
Derelict	2	1.88	1.07	0
Next to derelict	3	2.32	1.29	1
Height (m) of low blade reach **				
4.0	0	2.21	0	-4
5.1	0	1.41	0	-3
8.0	0	0.57	0	-1
8.9	2	0.24	8.20	3
9.6	29	16.61	1.75	23
11.1	0	0.58	0	-1
11.8	2	2.81	0.71	-2
12.0	0	0.06	0	0
13.5	7	5.11	1.37	4
14.4	0	0.28	0	-1
14.9	10	10.04	1	0
15.7	0	7.95	0	-15

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
16.6	3	4.72	0.64	-3
17.2	0	0.04	0	0
25.2	0	0.03	0	0
28.9	0	0.01	0	0
34.2	1	1.33	0.75	-1
Height (m) of low blade reach **				
4.0 – –5.1	0	3.62	0	-7
8.0 – –9.6	31	17.42	1.78	25
11.1 – –14.85	19	18.87	1.01	0
15.7 – –17.2	3	12.71	0.24	-18
25.2 – –34.2	1	1.38	0.73	-1
Height (m) of high blade reach **				
22.9	0	1.41	0	-3
25.3	2	2.81	0.71	-2
25.9	0	0.58	0	-1
27.4	29	16.61	1.75	23
29.5	0	1.87	0	-3
32.0	0	0.04	0	0
32.3	0	0.34	0	-1
32.6	3	4.72	0.64	-3
33.5	0	7.95	0	-15
33.6	0	0.28	0	-1
34.4	10	10.04	1	0
36.9	7	5.11	1.37	4
37.2	0	0.06	0	0
40.3	2	0.24	8.20	3
41.2	0	0.57	0	-1
44.9	0	0.01	0	0
48.6	0	0.03	0	0
52.0	1	1.33	0.75	-1
Height (m) of high blade reach **				
22.9 – –27.4	31	21.41	1.45	18
29.5 – –33.6	3	15.20	0.20	-23
34.4	10	10.04	1.00	0
36.9 – –52.0	10	7.35	1.36	5
Wind wall *				
Not in wind wall	53	46.43	1.14	12
In wind wall	1	7.57	0.13	-12
Position in string *				
End	21	11.97	1.75	17
Edge of gap	6	4.84	1.24	2
Interior	27	36.97	0.73	-18
Non-operational	0	0.18	0	0
Location in wind farm *				
Edge of farm	7	7.06	0.99	0
Edge of local cluster	12	5.60	2.14	12
Interior of wind farm	35	41.18	0.85	-11

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
Turbine congestion (no. in 300 m) *				
0 - –12	7	6.19	1.13	1
13 - –24	35	24.43	1.43	20
25 - –36	8	13.22	0.61	-10
37 - –72	4	10.10	0.40	-11
Elevation (m)				
85 - –135	6	8.05	0.75	-4
135 - –185	12	11.38	1.05	1
185 - –235	10	7.26	1.38	5
235 - –285	5	3.37	1.48	3
285 - –335	4	9.35	0.43	-10
335 - –385	11	6.22	1.77	9
385 - –535	6	8.35	0.72	-4
Slope grade (degrees) *				
0	11	21.47	0.51	-19
2 - –5	8	4.26	1.88	7
6 - –14	13	13.21	0.98	0
15 - –58	22	15.03	1.46	13
Physical relief *				
Peak	1	0.93	1.08	0
Plateau	1	3.75	0.27	-5
Ridge crest	10	17.38	0.58	-14
Ridgeline	22	10.93	2.01	21
Slope	17	18.21	0.93	-2
Saddle	2	2.39	0.84	-1
Ravine	1	0.41	2.47	1
Canyon *				
Not in canyon	39	45.77	0.85	-13
In canyon	15	8.23	1.82	13
Slope aspect				
None (flat)	11	15.61	0.70	-9
North-facing	7	7.83	0.89	-2
Northeast	2	3.50	0.57	-3
East	4	4.55	0.88	-1
Southeast	7	6.13	1.14	2
South	5	4.45	1.12	1
Southwest	1	0.94	1.06	0
West	6	2.00	3.00	7
Northwest	11	8.89	1.24	4
Slope aspect				
None (flat)	11	15.61	0.70	-9
East-northeast	6	8.05	0.75	-4
South-southeast	12	10.58	1.13	3
West-southwest	7	2.94	2.38	8
North-northwest	18	16.72	1.08	2
Edge index at tower base **				
No edge	1	2.06	0.48	-2

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
Some lateral edge	6	5.16	1.16	2
Lots lateral edge	7	16.90	0.41	-18
Some vertical edge	13	17.24	0.75	-8
Lots vertical edge	18	11.09	1.62	13
Lots vertical and lateral edge	9	1.55	5.80	14
Rockpiles ≤ 50 m away				
None	40	42.64	0.94	-5
1	6	4.69	1.28	3
≥ 2	5	3.67	1.36	3
Rodent control through 2001 *				
Unknown	1	0.65	1.53	1
None	20	12.46	1.61	14
Control	17	14.45	1.18	5
Intense control	16	26.44	0.61	-19
Rodent control through 2002 *				
Unknown	1	0.65	1.53	1
None	17	9.20	1.85	14
Control	17	14.46	1.18	5
Intense control	19	29.69	0.64	-20
Cattle pats 40 m from turbines				
0	0	2.19	0	-10
1 - –9	11	10.98	1.00	0
10 - –25	9	7.35	1.22	7
> 25	3	2.48	1.21	2
Cattle pats at turbines *				
0 - –2	0	2.99	0	-13
3 - –9	7	7.81	0.90	-4
10 - –25	7	7.53	0.93	-2
> 25	9	4.67	1.93	19
Cottontails 40 m from turbines				
No pellets	17	17.89	0.95	-4
Some pellets	5	4.05	1.24	4
Abundant pellets	1	1.06	0.94	0
Cottontails at turbines				
No pellets	18	17.52	1.03	2
Some pellets	4	4.01	1.00	0
Abundant pellets	1	1.47	0.68	-2
Vegetation height (cm) *				
0 - –10	3	3.96	0.76	-4
11 - –20	5	7.46	0.67	-11
21 - –35	5	7.00	0.71	-9
> 35	10	4.59	2.18	24
Pocket gopher clusting				
Obs/Exp in 15 m = 0	2	1.08	1.85	6
Obs/Exp in 15 m < 1.5	2	1.79	1.12	1
Obs/Exp in 15 m = 1.5–-3.0	6	6.11	0.98	-1
Obs/Exp in 15 m > 3	6	7.02	0.86	-6

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
Ground squirrel clustering				
Obs/Exp in 15 m = 0	5	5.64	0.89	-4
Obs/Exp in 15 m ≤ 1.14	9	6.20	1.45	17
Obs/Exp in 15 m > 1.14	2	4.16	0.48	-13
Pocket gopher density ≤ 90 m *				
0 – –1.4/ha	3	5.51	0.54	-16
1.41 – –3.5/ha	3	5.21	0.58	-14
> 3.5/ha	10	5.25	1.90	30
Ground squirrel density ≤ 90 m				
0/ha	1	2.85	0.35	-12
0.01 – –5.99/ha	9	9.36	0.96	-2
≥ 6/ha	6	3.79	1.58	14
Clustering of all burrows				
Obs/Exp in 15 m = 0–-1.2	3	3.32	0.90	-2
Obs/Exp in 15 m = 1.2–-3.0	11	8.30	1.33	17
Obs/Exp in 15 m > 3	2	4.38	0.46	-15
Density of all burrow systems *				
< 5/ha	1	6.16	0.16	-32
5 – –9/ha	8	4.71	1.70	21
> 9/ha	7	5.13	1.36	12
Season of the year				
Spring	5	7.00	0.71	-8
Summer	10	6.24	1.60	15
Fall	3	4.39	0.68	-6
Winter	7	7.36	0.95	-1

Table C2. Chi-square test statistics and derived measures of effect for red-tailed hawks.

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
Turbine model *				
Micon	11	15.15	0.73	-2
Bonus	73	59.88	1.22	6
Danwin	1	1.10	0.91	0
Flowind	3	8.73	0.34	-3
Windmatic	2	2.45	0.82	0
Enertech	4	11.09	0.36	-3
KCS-56	106	107.69	0.98	-1
KVS-33	3	2.23	1.35	0
Howden	3	0.96	3.12	1
Nordtank	7	3.51	2.00	2
W.E.G.	0	0.22	0	0
Rated turbine power (kW) *				
40	4	11.09	0.36	-3
65	20	21.11	0.95	-1
100	106	107.69	0.98	-1
110	1	1.10	0.91	0
120	34	39.59	0.86	-3
150	41	27.67	1.48	6
250	1	1.56	0.64	0
330	3	0.96	3.12	1
400	3	2.23	1.35	0
Rotor diameter (m) **				
13.5 – –14.8	6	13.54	0.44	-4
16.0	18	18.66	0.96	0
17.2 – –17.8	108	115.08	0.94	-3
19.1 – –19.5	36	42.03	0.86	-3
23.4 – –25.2	39	20.50	1.90	9
31.4 – –33.2	6	3.19	1.88	1
Blade tip speed (kph) **				
136.77	2	2.45	0.82	0
143.20	7	3.51	2.00	2
146.42	34	39.59	0.86	-3
148.03	4	11.09	0.36	-3
149.64	11	15.15	0.73	-2
173.77	39	20.28	1.92	9
180.21	3	2.23	1.35	0
193.08	3	8.49	0.35	-3
194.69	1	1.34	0.75	0
212.39	0	0.22	0	0
239.74	3	0.96	3.12	1
246.18	106	107.69	0.98	-1
Blade tip speed (kph) *				
137.77 – –149.64	58	71.80	0.81	-6
173.77 – –194.69	46	32.33	1.42	6

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
212.39 – –246.18	109	108.87	1.00	0
Seconds/sweep at blade tip **				
0.272583	106	107.69	0.98	-1
0.343807	4	11.09	0.36	-3
0.374882	1	1.10	0.91	0
0.403091	11	15.15	0.73	-2
0.407945	2	2.45	0.82	0
0.421219	7	3.51	2.00	2
0.447299	0	0.22	0	0
0.493765	3	0.96	3.12	1
0.502071	34	39.59	0.86	-3
0.503748	2	7.39	0.27	-3
0.507659	39	20.28	1.92	9
0.554769	1	1.34	0.75	0
0.694529	3	2.23	1.35	0
Seconds/sweep at blade tip				
0.2726	106	107.69	0.98	-1
0.3438 – –0.4938	28	34.48	0.81	-3
0.5021 – –0.6945	79	70.83	1.12	4
Rotor plane (m^2) swept/s **				
1498.8	4	11.09	0.36	-3
1518.1	2	2.45	0.82	0
1660.5	2	7.39	0.27	-3
1718.4	7	3.51	2.00	2
1795.7	11	15.15	0.73	-2
1859.3	1	1.34	0.75	0
2141.4	34	39.59	0.86	-3
2780.4	1	1.10	0.91	0
3049.7	39	20.28	1.92	9
3286.5	106	107.69	0.98	-1
4014.2	0	0.22	0	0
4487.2	3	2.23	1.35	0
5645.9	3	0.96	3.12	1
Rotor plane (m^2) swept/s *				
1499 - –1859	27	40.93	0.66	-7
2141	34	39.59	0.86	-3
2780 - –3287	146	129.07	1.13	8
4014 - –5646	6	3.41	1.76	1
Tower type *				
Vertical axis	3	8.73	0.34	-3
Tubular	95	80.98	1.17	7
Lattice	115	123.29	0.93	-4
Tower height (m) **				
14.0	3	5.56	0.54	-1
18.5	70	78.88	0.89	-4
24.0	1	1.10	0.91	0
24.6	93	93.16	1.00	0

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
25.2	39	20.15	1.94	9
29.5	2	7.39	0.27	-3
32.3	1	1.34	0.75	0
36.9	0	0.17	0	0
43.1	4	5.26	0.76	-1
Tower height (m) [t]				
14.0	3	5.56	0.54	-1
18.5	70	78.88	0.89	-4
24.0 – –25.2	133	114.40	1.16	9
29.5 – –32.3	3	8.73	0.34	-3
36.9 – –43.1	4	5.43	0.74	-1
Rotor orientation to wind *				
Faces wind	132	117.53	1.12	7
Away from wind	78	86.75	0.90	-4
Vertical axis	3	8.73	0.34	-3
Blade color scheme **				
White	204	207.90	0.98	-2
Black stripes	1	0.88	1.14	0
Red stripes	2	0.18	11.30	1
Red tips	4	1.82	2.20	1
Green tips	2	2.23	0.90	0
Perch guard **				
None	205	210.69	0.97	-3
Wire netting	8	2.32	3.46	3
Derelict turbines [t]				
Operating and away from derelict	205	196.45	1.04	4
Derelict	3	7.40	0.41	-2
Next to derelict	5	9.15	0.55	-2
Height (m) of low blade reach *				
4.0	3	8.73	0.34	-3
5.1	3	5.56	0.54	-1
8.0	3	2.23	1.35	0
8.9	3	0.96	3.12	1
9.6	64	65.51	0.98	-1
11.1	2	2.28	0.88	0
11.8	4	11.09	0.36	-3
12.0	0	0.22	0	0
13.5	39	20.15	1.94	9
14.4	1	1.10	0.91	0
14.9	34	39.59	0.86	-3
15.7	35	31.36	1.12	2
16.6	18	18.62	0.97	0
17.2	0	0.16	0	0
25.2	0	0.13	0	0
28.9	0	0.04	0	0
34.2	4	5.26	0.76	-1
Height (m) of low blade reach				

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
4.0 – –5.1	6	14.29	0.42	-4
8.0 – –9.6	70	68.70	1.02	1
11.1 – –14.85	80	74.44	1.07	3
15.7 – –17.2	53	50.15	1.06	1
25.2 – –34.2	4	5.43	0.74	-1
Height (m) of high blade reach *				
22.9	3	5.56	0.54	-1
25.3	4	11.09	0.36	-3
25.9	2	2.28	0.88	0
27.4	64	65.51	0.98	-1
29.5	2	7.39	0.27	-3
32.0	0	0.16	0	0
32.3	1	1.34	0.75	0
32.6	18	18.62	0.97	0
33.5	35	31.36	1.12	2
33.6	1	1.10	0.91	0
34.4	34	39.59	0.86	-3
36.9	39	20.15	1.94	9
37.2	0	0.22	0	0
40.3	3	0.96	3.12	1
41.2	3	2.23	1.35	0
44.9	0	0.04	0	0
48.6	0	0.13	0	0
52.0	4	5.26	0.76	-1
Height (m) of high blade reach **				
22.9 – –27.4	73	84.44	0.86	-5
29.5 – –33.6	57	59.97	0.95	-1
34.4	34	39.59	0.86	-3
36.9 – –52.0	49	28.99	1.69	9
Wind wall				
Not in wind wall	185	183.13	1.01	1
In wind wall	28	29.87	0.94	-1
Position in string **				
End	70	47.22	1.48	11
Edge of gap	21	19.08	1.10	1
Interior	122	145.84	0.84	-11
Non-operational	0	0.70	0	0
Location in wind farm **				
Edge of farm	28	27.57	1.02	0
Edge of local cluster	41	21.87	1.87	9
Interior of wind farm	142	160.90	0.88	-9
Turbine congestion (no. in 300 m) **				
0 - –12	41	24.43	1.68	8
13 - –24	88	96.37	0.91	-4
25 - –36	58	52.14	1.11	3
37 - –72	26	39.86	0.65	-7
Elevation (m)[t]				

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
85 - –135	31	31.74	0.98	0
135 - –185	42	44.88	0.94	-1
185 - –235	36	28.63	1.26	3
235 - –285	18	13.29	1.35	2
285 - –335	43	36.89	1.17	3
335 - –385	25	24.52	1.02	0
385 - –535	18	32.93	0.55	-7
Slope grade (degrees) *				
0	63	84.70	0.74	-10
2 - –5	23	16.81	1.37	3
6 - –14	62	52.09	1.19	5
15 - –58	65	59.27	1.10	3
Physical relief				
Peak	2	3.66	0.55	-1
Plateau	8	14.78	0.54	-3
Ridge crest	67	68.53	0.98	-1
Ridgeline	53	43.10	1.23	5
Slope	67	71.83	0.93	-2
Saddle	15	9.44	1.59	3
Ravine	1	1.60	0.63	0
Canyon **				
Not in canyon	148	180.52	0.82	-15
In canyon	65	32.48	2.00	15
Slope aspect *				
None (flat)	41	61.58	0.67	-10
North-facing	26	30.88	0.84	-2
Northeast	16	13.81	1.16	1
East	14	17.95	0.78	-2
Southeast	27	24.20	1.12	1
South	24	17.54	1.37	3
Southwest	6	3.72	1.61	1
West	9	7.90	1.14	1
Northwest	50	35.06	1.43	7
Slope aspect *				
None (flat)	41	61.58	0.67	-10
East-northeast	30	31.77	0.94	-1
South-southeast	51	41.73	1.22	4
West-southwest	15	11.61	1.29	2
North-northwest	76	65.94	1.15	5
Edge index at tower base **				
No edge	4	8.14	0.49	-2
Some lateral edge	19	20.35	0.93	-1
Lots lateral edge	45	66.65	0.68	-10
Some vertical edge	74	67.99	1.09	3
Lots vertical edge	54	43.76	1.23	5
Lots vertical and lateral edge	17	6.12	2.78	5
Rockpiles ≤ 50 m away				

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
None	154	161.37	0.95	-4
1	25	17.75	1.41	4
≥ 2	14	13.87	1.01	0
Rodent control through 2001 [t]				
Unknown	1	2.58	0.39	-1
None	45	49.14	0.92	-2
Control	74	56.99	1.30	8
Intense control	93	104.29	0.89	-5
Rodent control through 2002 *				
Unknown	1	2.58	0.39	-1
None	41	36.29	1.13	2
Control	74	57.05	1.30	8
Intense control	97	117.09	0.83	-9
Cattle pats 40 m from turbines *				
0	26	14.94	1.74	7
1 - –9	68	74.98	0.91	-4
10 - –25	46	50.19	0.92	-3
> 25	17	16.90	1.01	0
Cattle pats at turbines				
0 - –2	21	20.40	1.03	0
3 - –9	43	53.33	0.81	-7
10 - –25	58	51.38	1.13	4
> 25	35	31.89	1.10	2
Cottontails 40 m from turbines [t]				
No pellets	131	122.12	1.07	6
Some pellets	17	27.62	0.62	-7
Abundant pellets	9	7.26	1.24	1
Cottontails at turbines [t]				
No pellets	132	119.61	1.10	8
Some pellets	18	27.37	0.66	-6
Abundant pellets	7	10.02	0.70	-2
Vegetation height (cm)				
0 - –10	19	27.00	0.70	-5
11 - –20	53	50.93	1.04	1
21 - –35	47	47.77	0.98	0
> 35	38	31.30	1.21	4
Pocket gopher clusting				
Obs/Exp in 15 m = 0	6	6.28	0.96	0
Obs/Exp in 15 m < 1.5	9	10.42	0.86	-2
Obs/Exp in 15 m = 1.5-3.0	29	35.53	0.82	-7
Obs/Exp in 15 m > 3	49	40.77	1.20	9
Ground squirrel clustering				
Obs/Exp in 15 m = 0	33	32.78	1.01	0
Obs/Exp in 15 m ≤ 1.14	34	36.05	0.94	-2
Obs/Exp in 15 m > 1.14	26	24.17	1.08	2
Pocket gopher density ≤ 90 m				
0 – –1.4/ha	40	32.01	1.25	9

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
1.41 – –3.5/ha	29	30.29	0.96	-1
> 3.5/ha	24	30.54	0.79	-7
Ground squirrel density ≤ 90 m				
0/ha	15	16.56	0.91	-2
0.01 – –5.99/ha	63	54.41	1.16	9
≥ 6/ha	15	22.02	0.68	-8
Clustering of all burrows				
Obs/Exp in 15 m = 0–-1.2	19	19.28	0.99	0
Obs/Exp in 15 m = 1.2–-3.0	43	48.25	0.89	-6
Obs/Exp in 15 m > 3	31	25.48	1.22	6
Density of all burrow systems				
< 5/ha	45	35.82	1.26	10
5 – –9/ha	25	27.37	0.91	-3
> 9/ha	23	29.81	0.77	-7
Season of the year**				
Spring	11	42.30	0.26	-21
Summer	45	37.70	1.19	5
Fall	35	26.51	1.32	6
Winter	60	44.48	1.35	10

Table C3. Chi-square test statistics and derived measures of effect for American kestrels.

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
Turbine model **				
Micon	5	4.20	1.19	1
Bonus	10	16.59	0.60	-11
Danwin	0	0.30	0	-1
Flowind	1	2.42	0.41	-2
Windmatic	0	0.68	0	-1
Enertech	0	3.07	0	-5
KCS-56	33	29.83	1.11	5
KVS-33	7	0.62	11.35	11
Howden	0	0.27	0	0
Nordtank	3	0.97	3.09	3
W.E.G.	0	0.06	0	0
Rated turbine power (kW) **				
40	0	3.07	0	-5
65	8	5.85	1.37	4
100	33	29.83	1.11	5
110	0	0.30	0	-1
120	7	10.97	0.64	-7
150	4	7.67	0.52	-6
250	0	0.43	0	-1
330	0	0.27	0	0
400	7	0.62	11.35	11
Rotor diameter (m) **				
13.5 – –14.8	0	3.75	0	-6
16.0	8	5.17	1.55	5
17.2 – –17.8	34	31.88	1.07	4
19.1 – –19.5	7	11.64	0.60	-8
23.4 – –25.2	3	5.68	0.53	-5
31.4 – –33.2	7	0.88	7.92	10
Blade tip speed (kph) **				
136.77	0	0.68	0	-1
143.20	3	0.97	3.09	3
146.42	7	10.97	0.64	-7
148.03	0	3.07	0	-5
149.64	5	4.20	1.19	1
173.77	3	5.62	0.53	-4
180.21	7	0.62	11.35	11
193.08	1	2.35	0.43	-2
194.69	0	0.37	0	-1
212.39	0	0.06	0	0
239.74	0	0.27	0	0
246.18	33	29.83	1.11	5
Blade tip speed (kph)				
137.77 – –149.64	15	19.89	0.75	-8

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
173.77 – –194.69	11	8.96	1.23	3
212.39 – –246.18	33	30.16	1.09	5
Seconds/sweep at blade tip **				
0.272583	33	29.83	1.11	5
0.343807	0	3.07	0	-5
0.374882	0	0.30	0	-1
0.403091	5	4.20	1.19	1
0.407945	0	0.68	0	-1
0.421219	3	0.97	3.09	3
0.447299	0	0.06	0	0
0.493765	0	0.27	0	0
0.502071	7	10.97	0.64	-7
0.503748	1	2.05	0.49	-2
0.507659	3	5.62	0.53	-4
0.554769	0	0.37	0	-1
0.694529	7	0.62	11.35	11
Seconds/sweep at blade tip				
0.2726	33	29.83	1.11	5
0.3438 – –0.4938	8	9.55	0.84	-3
0.5021 – –0.6945	18	19.62	0.92	-3
Rotor plane (m^2) swept/s **				
1498.8	0	3.07	0	-5
1518.1	0	0.68	0	-1
1660.5	1	2.05	0.49	-2
1718.4	3	0.97	3.09	3
1795.7	5	4.20	1.19	1
1859.3	0	0.37	0	-1
2141.4	7	10.97	0.64	-7
2780.4	0	0.30	0	-1
3049.7	3	5.62	0.53	-4
3286.5	33	29.83	1.11	5
4014.2	0	0.06	0	0
4487.2	7	0.62	11.35	11
5645.9	0	0.27	0	0
Rotor plane (m^2) swept/s **				
1499 - –1859	9	11.34	0.79	-4
2141	7	10.97	0.64	-7
2780 - –3287	36	35.75	1.01	0
4014 - –5646	7	0.95	7.41	10
Tower type				
Vertical axis	1	2.42	0.41	-2
Tubular	18	22.43	0.80	-8
Lattice	40	34.15	1.17	10
Tower height (m)				
14.0	2	1.54	1.30	1
18.5	20	21.85	0.92	-3

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
24.0	0	0.30	0	-1
24.6	33	25.80	1.28	12
25.2	3	5.58	0.54	-4
29.5	1	2.05	0.49	-2
32.3	0	0.37	0	-1
36.9	0	0.05	0	0
43.1	0	1.46	0	-2
Tower height (m)				
14.0	2	1.54	1.30	1
18.5	20	21.85	0.92	-3
24.0 – –25.2	36	31.69	1.14	7
29.5 – –32.3	1	2.42	0.41	-2
36.9 – –43.1	0	1.50	0	-3
Rotor orientation to wind				
Faces wind	29	32.55	0.89	-6
Away from wind	29	24.03	1.21	8
Vertical axis	1	2.42	0.41	-2
Blade color scheme **				
White	53	57.59	0.92	-8
Black stripes	3	0.24	12.38	5
Red stripes	0	0.05	0	0
Red tips	1	0.50	1.98	1
Green tips	2	0.62	3.24	2
Perch guard				
None	58	58.36	0.99	-1
Wire netting	1	0.64	1.56	1
Derelict turbines				
Operating and away from derelict	58	54.42	1.07	6
Derelict	0	2.05	0	-3
Next to derelict	1	2.53	0.39	-3
Height (m) of low blade reach **				
4.0	1	2.42	0.41	-2
5.1	2	1.54	1.30	1
8.0	7	0.62	11.35	11
8.9	0	0.27	0	0
9.6	20	18.15	1.10	3
11.1	0	0.63	0	-1
11.8	0	3.07	0	-5
12.0	0	0.06	0	0
13.5	3	5.58	0.54	-4
14.4	0	0.30	0	-1
14.9	7	10.97	0.64	-7
15.7	11	8.69	1.27	4
16.6	8	5.16	1.55	5
17.2	0	0.05	0	0
25.2	0	0.04	0	0

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
28.9	0	0.01	0	0
34.2	0	1.46	0	-2
Height (m) of low blade reach *				
4.0 – –5.1	3	3.96	0.76	-2
8.0 – –9.6	27	19.03	1.42	14
11.1 – –14.85	10	20.62	0.48	-18
15.7 – –17.2	19	13.89	1.37	9
25.2 – –34.2	0	1.50	0	-3
Height (m) of high blade reach **				
22.9	2	1.54	1.30	1
25.3	0	3.07	0	-5
25.9	0	0.63	0	-1
27.4	20	18.15	1.10	3
29.5	1	2.05	0.49	-2
32.0	0	0.05	0	0
32.3	0	0.37	0	-1
32.6	8	5.16	1.55	5
33.5	11	8.69	1.27	4
33.6	0	0.30	0	-1
34.4	7	10.97	0.64	-7
36.9	3	5.58	0.54	-4
37.2	0	0.06	0	0
40.3	0	0.27	0	0
41.2	7	0.62	11.35	11
44.9	0	0.01	0	0
48.6	0	0.04	0	0
52.0	0	1.46	0	-2
Height (m) of high blade reach				
22.9 – –27.4	22	23.39	0.94	-2
29.5 – –33.6	20	16.61	1.20	6
34.4	7	10.97	0.64	-7
36.9 – –52.0	10	8.03	1.25	3
Wind wall				
Not in wind wall	50	50.73	0.99	-1
In wind wall	9	8.28	1.09	1
Position in string				
End	16	13.08	1.22	5
Edge of gap	6	5.29	1.14	1
Interior	37	40.40	0.92	-6
Non-operational	0	0.19	0	0
Location in wind farm				
Edge of farm	10	7.71	1.30	4
Edge of local cluster	9	6.12	1.47	5
Interior of wind farm	40	44.99	0.89	-8
Turbine congestion (no. in 300 m)				
0 - –12	8	6.77	1.18	2

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
13 - –24	31	26.70	1.16	7
25 - –36	11	14.44	0.76	-6
37 - –72	9	11.04	0.82	-3
Elevation (m) *				
85 - –135	12	8.79	1.36	5
135 - –185	4	12.43	0.32	-14
185 - –235	6	7.93	0.76	-3
235 - –285	6	3.68	1.63	4
285 - –335	8	10.22	0.78	-4
335 - –385	7	6.79	1.03	0
385 - –535	16	9.12	1.75	12
Slope grade (degrees)				
0	21	23.46	0.90	-4
2 - –5	9	4.65	1.93	7
6 - –14	17	14.43	1.18	4
15 - –58	12	16.42	0.73	-7
Physical relief [t]				
Peak	0	1.01	0	-2
Plateau	4	4.09	0.98	0
Ridge crest	22	18.98	1.16	5
Ridgeline	18	11.94	1.51	10
Slope	10	19.90	0.50	-17
Saddle	4	2.62	1.53	2
Ravine	1	0.44	2.26	1
Canyon				
Not in canyon	50	50.00	1.00	0
In canyon	9	9.00	1.00	0
Slope aspect				
None (flat)	16	17.06	0.94	-2
North-facing	4	8.55	0.47	-8
Northeast	5	3.83	1.31	2
East	5	4.97	1.01	0
Southeast	7	6.70	1.04	1
South	10	4.86	2.06	9
Southwest	0	1.03	0	-2
West	3	2.19	1.37	1
Northwest	9	9.71	0.93	-1
Slope aspect				
None (flat)	16	17.06	0.94	-2
East-northeast	10	8.80	1.14	2
South-southeast	17	11.56	1.47	9
West-southwest	3	3.22	0.93	0
North-northwest	13	18.27	0.71	-9
Edge index at tower base				
No edge	2	2.25	0.89	0
Some lateral edge	6	5.64	1.06	1

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
Lots lateral edge	18	18.46	0.98	-1
Some vertical edge	18	18.83	0.96	-1
Lots vertical edge	11	12.12	0.91	-2
Lots vertical and lateral edge	4	1.70	2.36	4
Rockpiles ≤ 50 m away				
None	39	37.63	1.04	3
1	6	4.14	1.45	4
≥ 2	0	3.24	0	-7
Rodent control through 2001				
Unknown	1	0.71	1.40	0
None	14	13.61	1.03	1
Control	11	15.79	0.70	-8
Intense control	33	28.89	1.14	7
Rodent control through 2002				
Unknown	1	0.71	1.40	0
None	13	10.05	1.29	5
Control	11	15.80	0.70	-8
Intense control	34	32.43	1.05	3
Cattle pats 40 m from turbines				
0	4	4.19	0.96	0
1 - –9	20	21.01	0.95	-2
10 - –25	15	14.07	1.07	2
> 25	5	4.74	1.06	1
Cattle pats at turbines				
0 - –2	5	5.72	0.87	-2
3 - –9	21	14.95	1.40	14
10 - –25	10	14.40	0.69	-10
> 25	8	8.94	0.90	-2
Cottontails 40 m from turbines				
No pellets	36	34.22	1.05	4
Some pellets	6	7.74	0.78	-4
Abundant pellets	2	2.04	0.98	0
Cottontails at turbines				
No pellets	33	33.52	0.98	-1
Some pellets	7	7.67	0.91	-2
Abundant pellets	4	2.81	1.42	3
Vegetation height (cm)				
0 - –10	10	7.57	1.32	6
11 - –20	13	14.27	0.91	-3
21 - –35	9	13.39	0.67	-10
> 35	12	8.77	1.37	7
Pocket gopher clusting				
Obs/Exp in 15 m = 0	0	1.22	0	-7
Obs/Exp in 15 m < 1.5	3	2.02	1.49	5
Obs/Exp in 15 m = 1.5-3.0	6	6.88	0.87	-5
Obs/Exp in 15 m > 3	9	7.89	1.14	6

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
Ground squirrel clustering [t]				
Obs/Exp in 15 m = 0	5	6.34	0.79	-7
Obs/Exp in 15 m ≤ 1.14	4	6.98	0.57	-17
Obs/Exp in 15 m > 1.14	9	4.68	1.92	24
Pocket gopher density ≤ 90 m *				
0 – –1.4/ha	12	6.20	1.94	32
1.41 – –3.5/ha	2	5.86	0.34	-21
> 3.5/ha	4	5.91	0.68	-11
Ground squirrel density ≤ 90 m				
0/ha	4	3.21	1.25	4
0.01 – –5.99/ha	12	10.53	1.14	8
≥ 6/ha	2	4.26	0.47	-13
Clustering of all burrows				
Obs/Exp in 15 m = 0–-1.2	2	3.73	0.54	-10
Obs/Exp in 15 m = 1.2–-3.0	11	9.34	1.18	9
Obs/Exp in 15 m > 3	5	4.93	1.01	0
Density of all burrow systems				
< 5/ha	9	6.93	1.30	11
5 – –9/ha	6	5.30	1.13	4
> 9/ha	3	5.77	0.52	-15
Season of the year [t]				
Spring	12	15.97	0.75	-7
Summer	11	14.23	0.77	-6
Fall	7	10.01	0.70	-5
Winter	27	16.79	1.61	18

Table C4. Chi-square test statistics and derived measures of effect for burrowing owls.

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
Turbine model **				
Micon	8	4.91	1.63	4
Bonus	31	19.40	1.60	17
Danwin	0	0.36	0	-1
Flowind	10	2.83	3.54	10
Windmatic	0	0.79	0	-1
Enertech	6	3.59	1.67	3
KCS-56	14	34.89	0.4	-30
KVS-33	0	0.72	0	-1
Howden	0	0.31	0	0
Nordtank	0	1.14	0	-2
W.E.G.	0	0.07	0	0
Rated turbine power (kW) **				
40	6	3.59	1.67	3
65	8	6.84	1.17	2
100	14	34.89	0.40	-30
110	0	0.36	0	-1
120	22	12.83	1.72	13
150	17	8.96	1.90	12
250	2	0.51	3.96	2
330	0	0.31	0	0
400	0	0.72	0	-1
Rotor diameter (m) **				
13.5 – –14.8	6	4.39	1.37	2
16.0	8	6.05	1.32	3
17.2 – –17.8	22	37.28	0.59	-22
19.1 – –19.5	24	13.61	1.76	15
23.4 – –25.2	9	6.64	1.36	3
31.4 – –33.2	0	1.03	0	-1
Blade tip speed (kph) **				
136.77	0	0.79	0	-1
143.20	0	1.14	0	-2
146.42	22	12.83	1.72	13
148.03	6	3.59	1.67	3
149.64	8	4.91	1.63	4
173.77	9	6.57	1.37	4
180.21	0	0.72	0	-1
193.08	8	2.75	2.91	8
194.69	2	0.43	4.62	2
212.39	0	0.07	0	0
239.74	0	0.31	0	0
246.18	14	34.89	0.40	-30
Blade tip speed (kph) **				
137.77 – –149.64	36	23.26	1.55	18
173.77 – –194.69	19	10.47	1.81	12

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
212.39 – –246.18	14	35.27	0.40	-31
Seconds/sweep at blade tip **				
0.272583	14	34.89	0.40	-30
0.343807	6	3.59	1.67	3
0.374882	0	0.36	0	-1
0.403091	8	4.91	1.63	4
0.407945	0	0.79	0	-1
0.421219	0	1.14	0	-2
0.447299	0	0.07	0	0
0.493765	0	0.31	0	0
0.502071	22	12.83	1.72	13
0.503748	8	2.39	3.34	8
0.507659	9	6.57	1.37	4
0.554769	2	0.43	4.62	2
0.694529	0	0.72	0	-1
Seconds/sweep at blade tip **				
0.2726	14	34.89	0.40	-30
0.3438 – –0.4938	14	11.17	1.25	4
0.5021 – –0.6945	41	22.95	1.79	26
Rotor plane (m^2) swept/s **				
1498.8	6	3.59	1.67	3
1518.1	0	0.79	0	-1
1660.5	8	2.39	3.34	8
1718.4	0	1.14	0	-2
1795.7	8	4.91	1.63	4
1859.3	2	0.43	4.62	2
2141.4	22	12.83	1.72	13
2780.4	0	0.36	0	-1
3049.7	9	6.57	1.37	4
3286.5	14	34.89	0.40	-30
4014.2	0	0.07	0	0
4487.2	0	0.72	0	-1
5645.9	0	0.31	0	0
Rotor plane (m^2) swept/s **				
1499 - –1859	24	13.26	1.81	16
2141	22	12.83	1.72	13
2780 - –3287	23	41.81	0.55	-27
4014 - –5646	0	1.11	0	-2
Tower type **				
Vertical axis	10	2.83	3.54	10
Tubular	39	26.23	1.49	19
Lattice	20	39.94	0.50	-29
Tower height (m) **				
14.0	0	1.80	0	-3
18.5	18	25.55	0.70	-11
24.0	0	0.36	0	-1
24.6	32	30.18	1.06	3

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
25.2	9	6.53	1.38	4
29.5	8	2.39	3.34	8
32.3	2	0.43	4.62	2
36.9	0	0.05	0	0
43.1	0	1.70	0	-2
Tower height (m) **				
14.0	0	1.80	0	-3
18.5	18	25.55	0.70	-11
24.0 – –25.2	41	37.06	1.11	6
29.5 – –32.3	10	2.83	3.54	10
36.9 – –43.1	0	1.76	0	-3
Rotor orientation to wind **				
Faces wind	40	38.07	1.05	3
Away from wind	19	28.10	0.68	-13
Vertical axis	10	2.83	3.54	10
Blade color scheme				
White	69	67.35	1.02	2
Black stripes	0	0.28	0	0
Red stripes	0	0.06	0	0
Red tips	0	0.59	0	-1
Green tips	0	0.72	0	-1
Perch guard				
None	69	68.25	1.01	1
Wire netting	0	0.75	0	-1
Derelict turbines				
Operating and away from derelict	60	63.64	0.94	-5
Derelict	5	2.40	2.08	4
Next to derelict	4	2.96	1.35	2
Height (m) of low blade reach **				
4.0	10	2.83	3.54	10
5.1	0	1.80	0	-3
8.0	0	0.72	0	-1
8.9	0	0.31	0	0
9.6	12	21.22	0.57	-13
11.1	0	0.74	0	-1
11.8	6	3.59	1.67	3
12.0	0	0.07	0	0
13.5	9	6.53	1.38	4
14.4	0	0.36	0	-1
14.9	22	12.83	1.72	13
15.7	2	10.16	0.20	-12
16.6	8	6.03	1.33	3
17.2	0	0.05	0	0
25.2	0	0.04	0	0
28.9	0	0.01	0	0
34.2	0	1.70	0	-2
Height (m) of low blade reach **				

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
4.0 – –5.1	10	4.63	2.16	8
8.0 – –9.6	12	22.25	0.54	-15
11.1 – –14.85	37	24.11	1.53	19
15.7 – –17.2	10	16.25	0.62	-9
25.2 – –34.2	0	1.76	0	-3
Height (m) of high blade reach **				
22.9	0	1.80	0	-3
25.3	6	3.59	1.67	3
25.9	0	0.74	0	-1
27.4	12	21.22	0.57	-13
29.5	8	2.39	3.34	8
32.0	0	0.05	0	0
32.3	2	0.43	4.62	2
32.6	8	6.03	1.33	3
33.5	2	10.16	0.20	-12
33.6	0	0.36	0	-1
34.4	22	12.83	1.72	13
36.9	9	6.53	1.38	4
37.2	0	0.07	0	0
40.3	0	0.31	0	0
41.2	0	0.72	0	-1
44.9	0	0.01	0	0
48.6	0	0.04	0	0
52.0	0	1.70	0	-2
Height (m) of high blade reach *				
22.9 – –27.4	18	27.35	0.66	-14
29.5 – –33.6	20	19.43	1.03	1
34.4	22	12.83	1.72	13
36.9 – –52.0	9	9.39	0.96	-1
Wind wall **				
Not in wind wall	68	59.32	1.15	13
In wind wall	1	9.68	0.10	-13
Position in string **				
End	32	15.30	2.09	24
Edge of gap	7	6.18	1.13	1
Interior	29	47.24	0.61	-26
Non-operational	1	0.23	4.43	1
Location in wind farm				
Edge of farm	5	9.02	0.55	-6
Edge of local cluster	5	7.15	0.70	-3
Interior of wind farm	59	52.62	1.12	9
Turbine congestion (no. in 300 m)				
0 - –12	12	7.91	1.52	6
13 - –24	36	31.22	1.15	7
25 - –36	14	16.89	0.83	-4
37 - –72	7	12.91	0.54	-9
Elevation (m) **				

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
85 - –135	17	10.28	1.65	10
135 - –185	24	14.54	1.65	14
185 - –235	23	9.27	2.48	20
235 - –285	2	4.31	0.46	-3
285 - –335	0	11.95	0	-17
335 - –385	3	7.94	0.38	-7
385 - –535	0	10.67	0	-15
Slope grade (degrees)				
0	27	27.44	0.98	-1
2 - –5	5	5.44	0.92	-1
6 - –14	13	16.87	0.77	-6
15 - –58	24	19.20	1.25	7
Physical relief				
Peak	0	1.17	0	-2
Plateau	5	4.72	1.06	0
Ridge crest	22	21.88	1.01	0
Ridgeline	8	13.76	0.58	-8
Slope	29	22.93	1.26	9
Saddle	3	3.02	1.00	0
Ravine	1	0.51	1.96	1
Canyon [t]				
Not in canyon	54	58.48	0.92	-6
In canyon	15	10.52	1.43	6
Slope aspect				
None (flat)	19	19.95	0.95	-1
North-facing	11	10.00	1.10	1
Northeast	4	4.48	0.89	-1
East	7	5.82	1.20	2
Southeast	4	7.84	0.51	-6
South	12	5.68	2.11	9
Southwest	1	1.20	0.83	0
West	1	2.56	0.39	-2
Northwest	10	11.36	0.88	-2
Slope aspect				
None (flat)	19	19.95	0.95	-1
East-northeast	11	10.29	1.07	1
South-southeast	16	13.52	1.18	4
West-southwest	2	3.76	0.53	-3
North-northwest	21	21.36	0.98	-1
Edge index at tower base				
No edge	2	2.64	0.76	-1
Some lateral edge	7	6.59	1.06	1
Lots lateral edge	13	21.59	0.60	-12
Some vertical edge	30	22.03	1.36	12
Lots vertical edge	16	14.18	1.13	3
Lots vertical and lateral edge	1	1.98	0.50	-1
Rockpiles ≤ 50 m away				

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
None	51	56.02	0.91	-7
1	9	6.16	1.46	4
≥ 2	7	4.82	1.45	3
Rodent control through 2001 **				
Unknown	2	0.84	2.40	2
None	13	15.92	0.82	-4
Control	35	18.46	1.90	24
Intense control	19	33.79	0.56	-21
Rodent control through 2002 **				
Unknown	2	0.84	2.40	2
None	5	11.75	0.43	-10
Control	35	18.48	1.89	24
Intense control	27	37.93	0.71	-16
Cattle pats 40 m from turbines [t]				
0	0	6.18	0	-10
1 - –9	32	31.04	1.03	1
10 - –25	24	20.78	1.16	5
> 25	9	7.00	1.29	3
Cattle pats at turbines *				
0 - –2	4	8.45	0.47	-7
3 - –9	15	22.08	0.68	-11
10 - –25	25	21.27	1.18	6
> 25	21	13.20	1.59	12
Cottontails 40 m from turbines				
No pellets	50	50.56	0.99	-1
Some pellets	11	11.43	0.96	-1
Abundant pellets	4	3.01	1.33	2
Cottontails at turbines				
No pellets	46	49.52	0.93	-5
Some pellets	16	11.33	1.41	7
Abundant pellets	3	4.15	0.72	-2
Vegetation height (cm)				
0 - –10	10	11.18	0.89	-2
11 - –20	24	21.09	1.14	4
21 - –35	19	19.78	0.96	-1
> 35	12	12.96	0.93	-1
Pocket gopher clusting [t]				
Obs/Exp in 15 m = 0	1	1.89	0.53	-3
Obs/Exp in 15 m < 1.5	7	3.14	2.23	14
Obs/Exp in 15 m = 1.5–-3.0	7	10.70	0.65	-13
Obs/Exp in 15 m > 3	13	12.28	1.06	3
Ground squirrel clustering				
Obs/Exp in 15 m = 0	5	9.87	0.51	-17
Obs/Exp in 15 m ≤ 1.14	12	10.85	1.11	4
Obs/Exp in 15 m > 1.14	11	7.28	1.51	13
Pocket gopher density ≤ 90 m				
0 – –1.4/ha	7	9.29	0.75	-8

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
1.41 – –3.5/ha	12	8.79	1.36	12
> 3.5/ha	8	8.87	0.90	-3
Ground squirrel density ≤ 90 m				
0/ha	1	4.99	0.20	-14
0.01 – –5.99/ha	20	16.38	1.22	13
≥ 6/ha	7	6.63	1.06	1
Clustering of all burrows				
Obs/Exp in 15 m = 0–-1.2	7	5.80	1.21	4
Obs/Exp in 15 m = 1.2–-3.0	16	14.53	1.10	5
Obs/Exp in 15 m > 3	5	7.67	0.65	-10
Density of all burrow systems				
< 5/ha	8	10.79	0.74	-10
5 – –9/ha	10	8.24	1.21	6
> 9/ha	10	8.98	1.11	4
Season of the year**				
Spring	3	19.05	0.16	-24
Summer	31	16.98	1.83	21
Fall	10	11.94	0.84	-3
Winter	24	20.03	1.20	6

Table C5. Chi-square test statistics and derived measures of effect for barn owls.

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
Turbine model				
Micon	1	3.49	0.29	-5
Bonus	17	13.77	1.23	7
Danwin	0	0.25	0	-1
Flowind	3	2.01	1.49	2
Windmatic	0	0.56	0	-1
Enertech	0	2.55	0	-5
KCS-56	26	24.77	1.05	3
KVS-33	1	0.51	1.95	1
Howden	0	0.22	0	0
Nordtank	1	0.81	1.24	0
W.E.G.	0	0.05	0	0
Rated turbine power (kW)				
40	0	2.55	0	-5
65	2	4.86	0.41	-6
100	26	24.77	1.05	3
110	0	0.25	0	-1
120	11	9.11	1.21	4
150	9	6.37	1.41	5
250	0	0.36	0	-1
330	0	0.22	0	0
400	1	0.51	1.95	1
Rotor diameter (m)				
13.5 – –14.8	0	3.12	0	-6
16.0	2	4.29	0.47	-5
17.2 – –17.8	29	26.47	1.10	5
19.1 – –19.5	11	9.67	1.14	3
23.4 – –25.2	6	4.72	1.27	3
31.4 – –33.2	1	0.73	1.36	1
Blade tip speed (kph)				
136.77	0	0.56	0	-1
143.20	1	0.81	1.24	0
146.42	11	9.11	1.21	4
148.03	0	2.55	0	-5
149.64	1	3.49	0.29	-5
173.77	6	4.67	1.29	3
180.21	1	0.51	1.95	1
193.08	3	1.95	1.54	2
194.69	0	0.31	0	-1
212.39	0	0.05	0	0
239.74	0	0.22	0	0
246.18	26	24.77	1.05	3
Blade tip speed (kph)				
137.77 – –149.64	13	16.52	0.79	-7
173.77 – –194.69	10	7.44	1.34	5

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
212.39 – –246.18	26	25.05	1.04	2
Seconds/sweep at blade tip				
0.272583	26	24.77	1.05	3
0.343807	0	2.55	0	-5
0.374882	0	0.25	0	-1
0.403091	1	3.49	0.29	-5
0.407945	0	0.56	0	-1
0.421219	1	0.81	1.24	0
0.447299	0	0.05	0	0
0.493765	0	0.22	0	0
0.502071	11	9.11	1.21	4
0.503748	3	1.70	1.76	3
0.507659	6	4.67	1.29	3
0.554769	0	0.31	0	-1
0.694529	1	0.51	1.95	1
Seconds/sweep at blade tip [t]				
0.2726	26	24.77	1.05	3
0.3438 – –0.4938	2	7.93	0.25	-12
0.5021 – –0.6945	21	16.29	1.29	10
Rotor plane (m^2) swept/s				
1498.8	0	2.55	0	-5
1518.1	0	0.56	0	-1
1660.5	3	1.70	1.76	3
1718.4	1	0.81	1.24	0
1795.7	1	3.49	0.29	-5
1859.3	0	0.31	0	-1
2141.4	11	9.11	1.21	4
2780.4	0	0.25	0	-1
3049.7	6	4.67	1.29	3
3286.5	26	24.77	1.05	3
4014.2	0	0.05	0	0
4487.2	1	0.51	1.95	1
5645.9	0	0.22	0	0
Rotor plane (m^2) swept/s				
1499 - –1859	5	9.42	0.53	-9
2141	11	9.11	1.21	4
2780 - –3287	32	29.69	1.08	5
4014 - –5646	1	0.79	1.27	0
Tower type				
Vertical axis	3	2.01	1.49	2
Tubular	19	18.63	1.02	1
Lattice	27	28.36	0.95	-3
Tower height (m)				
14.0	0	1.28	0	-3
18.5	13	18.15	0.72	-11
24.0	0	0.25	0	-1
24.6	27	21.43	1.26	11

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
25.2	6	4.64	1.29	3
29.5	3	1.70	1.76	3
32.3	0	0.31	0	-1
36.9	0	0.04	0	0
43.1	0	1.21	0	-2
Tower height (m)				
14.0	0	1.28	0	-3
18.5	13	18.15	0.72	-11
24.0 – –25.2	33	26.32	1.25	14
29.5 – –32.3	3	2.01	1.49	2
36.9 – –43.1	0	1.25	0	-3
Rotor orientation to wind				
Faces wind	27	27.04	1.00	0
Away from wind	19	19.96	0.95	-2
Vertical axis	3	2.01	1.49	2
Blade color scheme **				
White	47	47.83	0.98	-2
Black stripes	0	0.20	0	0
Red stripes	1	0.04	24.56	2
Red tips	1	0.42	2.39	1
Green tips	0	0.51	0	-1
Perch guard				
None	49	48.47	1.01	1
Wire netting	0	0.53	0	-1
Derelict turbines				
Operating and away from derelict	42	45.19	0.93	-7
Derelict	3	1.70	1.76	3
Next to derelict	4	2.10	1.90	4
Height (m) of low blade reach				
4.0	3	2.01	1.49	2
5.1	0	1.28	0	-3
8.0	1	0.51	1.95	1
8.9	0	0.22	0	0
9.6	13	15.07	0.86	-4
11.1	0	0.53	0	-1
11.8	0	2.55	0	-5
12.0	0	0.05	0	0
13.5	6	4.64	1.29	3
14.4	0	0.25	0	-1
14.9	11	9.11	1.21	4
15.7	13	7.22	1.80	12
16.6	2	4.28	0.47	-5
17.2	0	0.04	0	0
25.2	0	0.03	0	0
28.9	0	0.01	0	0
34.2	0	1.21	0	-2
Height (m) of low blade reach				

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
4.0 – –5.1	3	3.29	0.91	-1
8.0 – –9.6	14	15.80	0.89	-4
11.1 – –14.85	17	17.13	0.99	0
15.7 – –17.2	15	11.54	1.30	7
25.2 – –34.2	0	1.25	0	-3
Height (m) of high blade reach				
22.9	0	1.28	0	-3
25.3	0	2.55	0	-5
25.9	0	0.53	0	-1
27.4	13	15.07	0.86	-4
29.5	3	1.70	1.76	3
32.0	0	0.04	0	0
32.3	0	0.31	0	-1
32.6	2	4.28	0.47	-5
33.5	13	7.22	1.80	12
33.6	0	0.25	0	-1
34.4	11	9.11	1.21	4
36.9	6	4.64	1.29	3
37.2	0	0.05	0	0
40.3	0	0.22	0	0
41.2	1	0.51	1.95	1
44.9	0	0.01	0	0
48.6	0	0.03	0	0
52.0	0	1.21	0	-2
Height (m) of high blade reach				
22.9 – –27.4	13	19.43	0.67	-13
29.5 – –33.6	18	13.80	1.30	9
34.4	11	9.11	1.21	4
36.9 – –52.0	7	6.67	1.05	1
Wind wall				
Not in wind wall	43	42.13	1.02	2
In wind wall	6	6.87	0.87	-2
Position in string [t]				
End	14	10.86	1.29	6
Edge of gap	6	4.39	1.37	3
Interior	28	33.55	0.83	-11
Non-operational	1	0.16	6.24	2
Location in wind farm *				
Edge of farm	6	6.40	0.94	-1
Edge of local cluster	11	5.08	2.17	12
Interior of wind farm	32	37.37	0.86	-11
Turbine congestion (no. in 300 m) *				
0 - –12	8	5.62	1.42	5
13 - –24	31	22.17	1.40	18
25 - –36	7	11.99	0.58	-10
37 - –72	3	9.17	0.33	-13
Elevation (m)				

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
85 - –135	4	7.30	0.55	-7
135 - –185	12	10.33	1.16	3
185 - –235	9	6.59	1.37	5
235 - –285	2	3.06	0.65	-2
285 - –335	10	8.49	1.18	3
335 - –385	9	5.64	1.60	7
385 - –535	3	7.57	0.40	-9
Slope grade (degrees) [t]				
0	8	19.49	0.41	-23
2 - –5	5	3.87	1.29	2
6 - –14	14	11.98	1.17	4
15 - –58	22	13.63	1.61	17
Physical relief				
Peak	0	0.84	0	-2
Plateau	3	3.40	0.88	-1
Ridge crest	12	15.77	0.76	-8
Ridgeline	18	9.92	1.82	16
Slope	14	16.52	0.85	-5
Saddle	2	2.17	0.92	0
Ravine	0	0.37	0	-1
Canyon **				
Not in canyon	29	41.53	0.70	-26
In canyon	20	7.47	2.68	26
Slope aspect **				
None (flat)	8	14.17	0.56	-13
North-facing	9	7.11	1.27	4
Northeast	1	3.18	0.31	-4
East	4	4.13	0.97	0
Southeast	4	5.57	0.72	-3
South	0	4.04	0	-8
Southwest	1	0.86	1.17	0
West	4	1.82	2.20	4
Northwest	18	8.07	2.23	20
Slope aspect **				
None (flat)	8	14.17	0.56	-13
East-northeast	5	7.31	0.68	-5
South-southeast	4	9.60	0.42	-11
West-southwest	5	2.67	1.87	5
North-northwest	27	15.17	1.78	24
Edge index at tower base				
No edge	2	1.87	1.07	0
Some lateral edge	3	4.68	0.64	-3
Lots lateral edge	14	15.33	0.91	-3
Some vertical edge	15	15.64	0.96	-1
Lots vertical edge	13	10.07	1.29	6
Lots vertical and lateral edge	2	1.41	1.42	1
Rockpiles ≤ 50 m away				

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
None	35	34.28	1.02	2
1	2	3.77	0.53	-4
≥ 2	4	2.95	1.36	3
Rodent control through 2001				
Unknown	0	0.59	0	-1
None	7	11.30	0.62	-9
Control	20	13.11	1.53	14
Intense control	22	23.99	0.92	-4
Rodent control through 2002				
Unknown	0	0.59	0	-1
None	7	8.35	0.84	-3
Control	20	13.12	1.52	14
Intense control	22	26.94	0.82	-10
Cattle pats 40 m from turbines **				
0	3	3.52	0.85	-1
1 - –9	22	17.67	1.25	12
10 - –25	2	11.83	0.17	-27
> 25	10	3.98	2.51	16
Cattle pats at turbines				
0 - –2	5	4.81	1.04	1
3 - –9	9	12.57	0.72	-10
10 - –25	17	12.11	1.40	13
> 25	6	7.52	0.80	-4
Cottontails 40 m from turbines				
No pellets	29	28.78	1.01	1
Some pellets	7	6.51	1.08	1
Abundant pellets	1	1.71	0.58	-2
Cottontails at turbines				
No pellets	33	28.19	1.17	13
Some pellets	3	6.45	0.47	-9
Abundant pellets	1	2.36	0.42	-4
Vegetation height (cm)				
0 - –10	8	6.36	1.26	4
11 - –20	13	12.00	1.08	3
21 - –35	6	11.26	0.53	-14
> 35	10	7.38	1.36	7
Pocket gopher clusting				
Obs/Exp in 15 m = 0	2	1.15	1.74	5
Obs/Exp in 15 m < 1.5	0	1.91	0	-11
Obs/Exp in 15 m = 1.5–-3.0	6	6.50	0.92	-3
Obs/Exp in 15 m > 3	9	7.45	1.21	9
Ground squirrel clustering				
Obs/Exp in 15 m = 0	4	5.99	0.67	-12
Obs/Exp in 15 m ≤ 1.14	6	6.59	0.91	-3
Obs/Exp in 15 m > 1.14	7	4.42	1.58	15
Pocket gopher density ≤ 90 m				
0 – –1.4/ha	8	5.85	1.37	13

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
1.41 – –3.5/ha	5	5.54	0.90	-3
> 3.5/ha	4	5.58	0.72	-9
Ground squirrel density ≤ 90 m				
0/ha	1	3.03	0.33	-12
0.01 – –5.99/ha	14	9.95	1.41	24
≥ 6/ha	2	4.03	0.50	-12
Clustering of all burrows				
Obs/Exp in 15 m = 0–-1.2	5	3.52	1.42	9
Obs/Exp in 15 m = 1.2–-3.0	10	8.82	1.13	7
Obs/Exp in 15 m > 3	2	4.66	0.43	-16
Density of all burrow systems				
< 5/ha	7	6.55	1.07	3
5 – –9/ha	7	5.00	1.40	12
> 9/ha	3	5.45	0.55	-14
Season of the year				
Spring	6	11.49	0.52	-13
Summer	16	10.24	1.56	14
Fall	7	7.20	0.97	0
Winter	12	12.08	0.99	0

Table C6. Chi-square test statistics and derived measures of effect for great horned owls.

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
Turbine model				
Micon	2	1.28	1.56	4
Bonus	3	5.06	0.59	-11
Danwin	0	0.09	0	-1
Flowind	0	0.74	0	-4
Windmatic	0	0.21	0	-1
Enertech	0	0.94	0	-5
KCS-56	13	9.10	1.43	22
KVS-33	0	0.19	0	-1
Howden	0	0.08	0	0
Nordtank	0	0.30	0	-2
W.E.G.	0	0.02	0	0
Rated turbine power (kW)				
40	0	0.94	0	-5
65	2	1.78	1.12	1
100	13	9.10	1.43	22
110	0	0.09	0	-1
120	1	3.35	0.30	-13
150	2	2.34	0.86	-2
250	0	0.13	0	-1
330	0	0.08	0	0
400	0	0.19	0	-1
Rotor diameter (m)				
13.5 – –14.8	0	1.14	0	-6
16.0	2	1.58	1.27	2
17.2 – –17.8	13	9.73	1.34	18
19.1 – –19.5	1	3.55	0.28	-14
23.4 – –25.2	2	1.73	1.15	1
31.4 – –33.2	0	0.27	0	-1
Blade tip speed (kph)				
136.77	0	0.21	0	-1
143.20	0	0.30	0	-2
146.42	1	3.35	0.30	-13
148.03	0	0.94	0	-5
149.64	2	1.28	1.56	4
173.77	2	1.71	1.17	2
180.21	0	0.19	0	-1
193.08	0	0.72	0	-4
194.69	0	0.11	0	-1
212.39	0	0.02	0	0
239.74	0	0.08	0	0
246.18	13	9.10	1.43	22
Blade tip speed (kph)				
137.77 – –149.64	3	6.07	0.49	-17
173.77 – –194.69	2	2.73	0.73	-4

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
212.39 – –246.18	13	9.20	1.41	21
Seconds/sweep at blade tip				
0.272583	13	9.10	1.43	22
0.343807	0	0.94	0	-5
0.374882	0	0.09	0	-1
0.403091	2	1.28	1.56	4
0.407945	0	0.21	0	-1
0.421219	0	0.30	0	-2
0.447299	0	0.02	0	0
0.493765	0	0.08	0	0
0.502071	1	3.35	0.30	-13
0.503748	0	0.63	0	-3
0.507659	2	1.71	1.17	2
0.554769	0	0.11	0	-1
0.694529	0	0.19	0	-1
Seconds/sweep at blade tip				
0.2726	13	9.10	1.43	22
0.3438 – –0.4938	2	2.91	0.69	-5
0.5021 – –0.6945	3	5.99	0.50	-17
Rotor plane (m^2) swept/s				
1498.8	0	0.94	0	-5
1518.1	0	0.21	0	-1
1660.5	0	0.63	0	-3
1718.4	0	0.30	0	-2
1795.7	2	1.28	1.56	4
1859.3	0	0.11	0	-1
2141.4	1	3.35	0.30	-13
2780.4	0	0.09	0	-1
3049.7	2	1.71	1.17	2
3286.5	13	9.10	1.43	22
4014.2	0	0.02	0	0
4487.2	0	0.19	0	-1
5645.9	0	0.08	0	0
Rotor plane (m^2) swept/s				
1499 - –1859	2	3.46	0.58	-8
2141	1	3.35	0.30	-13
2780 - –3287	15	10.91	1.38	23
4014 - –5646	0	0.29	0	-2
Tower type				
Vertical axis	0	0.74	0	-4
Tubular	5	6.84	0.73	-10
Lattice	13	10.42	1.25	14
Tower height (m) **				
14.0	1	0.47	2.13	3
18.5	10	6.67	1.50	19
24.0	0	0.09	0	-1
24.6	5	7.87	0.64	-16

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
25.2	1	1.70	0.59	-4
29.5	0	0.63	0	-3
32.3	0	0.11	0	-1
36.9	1	0.01	70.52	5
43.1	0	0.45	0	-2
Tower height (m)				
14.0	1	0.47	2.13	3
18.5	10	6.67	1.5	19
24.0 – –25.2	6	9.67	0.62	-20
29.5 – –32.3	0	0.74	0	-4
36.9 – –43.1	1	0.46	2.18	3
Rotor orientation to wind				
Faces wind	8	9.93	0.81	-11
Away from wind	10	7.33	1.36	15
Vertical axis	0	0.74	0	-4
Blade color scheme				
White	17	17.57	0.97	-3
Black stripes	0	0.07	0	0
Red stripes	0	0.02	0	0
Red tips	0	0.15	0	-1
Green tips	1	0.19	5.31	5
Perch guard[t]				
None	17	17.80	0.95	-4
Wire netting	1	0.20	5.11	4
Derelict turbines				
Operating and away from derelict	17	16.60	1.02	2
Derelict	0	0.63	0	-3
Next to derelict	1	0.77	1.29	1
Height (m) of low blade reach **				
4.0	0	0.74	0	-4
5.1	1	0.47	2.13	3
8.0	0	0.19	0	-1
8.9	0	0.08	0	0
9.6	10	5.54	1.81	25
11.1	0	0.19	0	-1
11.8	0	0.94	0	-5
12.0	0	0.02	0	0
13.5	1	1.70	0.59	-4
14.4	0	0.09	0	-1
14.9	1	3.35	0.30	-13
15.7	2	2.65	0.75	-4
16.6	2	1.57	1.27	2
17.2	0	0.01	0	0
25.2	1	0.01	91.68	5
28.9	0	0.00	0	0
34.2	0	0.45	0	-2
Height (m) of low blade reach				

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
4.0 – –5.1	1	1.21	0.83	-1
8.0 – –9.6	10	5.81	1.72	23
11.1 – –14.85	2	6.29	0.32	-24
15.7 – –17.2	4	4.24	0.94	-1
25.2 – –34.2	1	0.46	2.18	3
Height (m) of high blade reach **				
22.9	1	0.47	2.13	3
25.3	0	0.94	0	-5
25.9	0	0.19	0	-1
27.4	10	5.54	1.81	25
29.5	0	0.63	0	-3
32.0	0	0.01	0	0
32.3	0	0.11	0	-1
32.6	2	1.57	1.27	2
33.5	2	2.65	0.75	-4
33.6	0	0.09	0	-1
34.4	1	3.35	0.30	-13
36.9	1	1.70	0.59	-4
37.2	0	0.02	0	0
40.3	0	0.08	0	0
41.2	0	0.19	0	-1
44.9	0	0.00	0	0
48.6	1	0.01	91.68	5
52.0	0	0.45	0	-2
Height (m) of high blade reach				
22.9 – –27.4	11	7.14	1.54	21
29.5 – –33.6	4	5.07	0.79	-6
34.4	1	3.35	0.30	-13
36.9 – –52.0	2	2.45	0.82	-3
Wind wall				
Not in wind wall	15	15.48	0.97	-3
In wind wall	3	2.52	1.19	3
Position in string				
End	5	3.99	1.25	6
Edge of gap	3	1.61	1.86	8
Interior	10	12.32	0.81	-13
Non-operational	0	0.06	0	0
Location in wind farm				
Edge of farm	4	2.35	1.70	9
Edge of local cluster	2	1.87	1.07	1
Interior of wind farm	12	13.73	0.87	-10
Turbine congestion (no. in 300 m)				
0 - –12	2	2.07	0.97	0
13 - –24	8	8.14	0.98	-1
25 - –36	3	4.41	0.68	-8
37 - –72	5	3.37	1.48	9
Elevation (m)				

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
85 - –135	2	2.68	0.75	-4
135 - –185	2	3.79	0.53	-10
185 - –235	0	2.42	0	-13
235 - –285	1	1.12	0.89	-1
285 - –335	3	3.12	0.96	-1
335 - –385	3	2.07	1.45	5
385 - –535	7	2.78	2.52	23
Slope grade (degrees)				
0	9	7.16	1.26	10
2 - –5	2	1.42	1.41	3
6 - –14	3	4.40	0.68	-8
15 - –58	4	5.01	0.80	-6
Physical relief **				
Peak	0	0.31	0	-2
Plateau	5	1.25	4	21
Ridge crest	3	5.79	0.52	-16
Ridgeline	4	3.64	1.10	2
Slope	5	6.07	0.82	-6
Saddle	0	0.80	0	-4
Ravine	1	0.14	7.42	5
Canyon				
Not in canyon	17	15.26	1.11	10
In canyon	1	2.75	0.36	-10
Slope aspect				
None (flat)	8	5.20	1.54	16
North-facing	0	2.61	0	-14
Northeast	1	1.17	0.86	-1
East	1	1.52	0.66	-3
Southeast	1	2.05	0.49	-6
South	1	1.48	0.67	-3
Southwest	1	0.31	3.18	4
West	1	0.67	1.50	2
Northwest	4	2.96	1.35	6
Slope aspect				
None (flat)	8	5.20	1.54	16
East-northeast	2	2.68	0.75	-4
South-southeast	2	3.53	0.57	-8
West-southwest	2	0.98	2.04	6
North-northwest	4	5.57	0.72	-9
Edge index at tower base				
No edge	2	0.69	2.91	7
Some lateral edge	1	1.72	0.58	-4
Lots lateral edge	6	5.63	1.07	2
Some vertical edge	6	5.75	1.04	1
Lots vertical edge	3	3.70	0.81	-4
Lots vertical and lateral edge	0	0.52	0	-3
Rockpiles ≤ 50 m away				

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
None	10	10.87	0.92	-7
1	3	1.20	2.51	14
≥ 2	0	0.93	0	-7
Rodent control through 2001				
Unknown	0	0.22	0	-1
None	6	4.15	1.44	10
Control	1	4.82	0.21	-21
Intense control	11	8.81	1.25	12
Rodent control through 2002				
Unknown	0	0.22	0	-1
None	5	3.07	1.63	11
Control	1	4.82	0.21	-21
Intense control	12	9.90	1.21	12
Cattle pats 40 m from turbines *				
0	0	1.24	0	-10
1 - –9	8	6.21	1.29	14
10 - –25	1	4.16	0.24	-24
> 25	4	1.40	2.86	20
Cattle pats at turbines				
0 - –2	2	1.69	1.18	2
3 - –9	4	4.42	0.91	-3
10 - –25	3	4.25	0.71	-10
> 25	4	2.64	1.52	10
Cottontails 40 m from turbines				
No pellets	12	10.11	1.19	15
Some pellets	1	2.29	0.44	-10
Abundant pellets	0	0.60	0	-5
Cottontails at turbines				
No pellets	10	9.90	1.01	1
Some pellets	3	2.27	1.32	6
Abundant pellets	0	0.83	0	-6
Vegetation height (cm)				
0 - –10	1	2.24	0.45	-10
11 - –20	4	4.22	0.95	-2
21 - –35	5	3.96	1.26	8
> 35	3	2.59	1.16	3
Pocket gopher clusting				
Obs/Exp in 15 m = 0	1	0.54	1.85	6
Obs/Exp in 15 m < 1.5	2	0.90	2.23	14
Obs/Exp in 15 m = 1.5–-3.0	2	3.06	0.65	-13
Obs/Exp in 15 m > 3	3	3.51	0.86	-6
Ground squirrel clustering				
Obs/Exp in 15 m = 0	4	2.82	1.42	15
Obs/Exp in 15 m ≤ 1.14	2	3.10	0.64	-14
Obs/Exp in 15 m > 1.14	2	2.08	0.96	-1
Pocket gopher density ≤ 90 m				
0 – –1.4/ha	3	2.75	1.09	3

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
1.41 – –3.5/ha	3	2.61	1.15	5
> 3.5/ha	2	2.63	0.76	-8
Ground squirrel density ≤ 90 m				
0/ha	2	1.43	1.40	7
0.01 – –5.99/ha	4	4.68	0.85	-9
≥ 6/ha	2	1.90	1.06	1
Clustering of all burrows				
Obs/Exp in 15 m = 0–-1.2	2	1.66	1.21	4
Obs/Exp in 15 m = 1.2–-3.0	4	4.15	0.96	-2
Obs/Exp in 15 m > 3	2	2.19	0.91	-2
Density of all burrow systems				
< 5/ha	3	3.08	0.97	-1
5 – –9/ha	2	2.35	0.85	-4
> 9/ha	3	2.56	1.17	5
Season of the year				
Spring	5	2.80	1.78	22
Summer	2	2.50	0.80	-5
Fall	0	1.76	0	-18
Winter	3	2.95	1.02	1

Table C7. Chi-square test statistics and derived measures of effect for mallards.

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
Turbine model *				
Micon	6	2.35	2.56	11
Bonus	18	9.28	1.94	26
Danwin	0	0.17	0	-1
Flowind	2	1.35	1.48	2
Windmatic	1	0.38	2.64	2
Enertech	0	1.72	0	-5
KCS-56	6	16.68	0.36	-32
KVS-33	0	0.35	0	-1
Howden	0	0.15	0	0
Nordtank	0	0.54	0	-2
W.E.G.	0	0.03	0	0
Rated turbine power (kW) **				
40	0	1.72	0	-5
65	7	3.27	2.14	11
100	6	16.68	0.36	-32
110	0	0.17	0	-1
120	7	6.13	1.14	3
150	13	4.29	3.03	26
250	0	0.24	0	-1
330	0	0.15	0	0
400	0	0.35	0	-1
Rotor diameter (m) **				
13.5 – –14.8	1	2.10	0.48	-3
16.0	6	2.89	2.08	9
17.2 – –17.8	8	17.83	0.45	-30
19.1 – –19.5	7	6.51	1.08	1
23.4 – –25.2	11	3.18	3.46	24
31.4 – –33.2	0	0.49	0	-1
Blade tip speed (kph) **				
136.77	1	0.38	2.64	2
143.20	0	0.54	0	-2
146.42	7	6.13	1.14	3
148.03	0	1.72	0	-5
149.64	6	2.35	2.56	11
173.77	11	3.14	3.50	24
180.21	0	0.35	0	-1
193.08	2	1.32	1.52	2
194.69	0	0.21	0	-1
212.39	0	0.03	0	0
239.74	0	0.15	0	0
246.18	6	16.68	0.36	-32
Blade tip speed (kph) **				
137.77 – –149.64	14	11.12	1.26	9
173.77 – –194.69	13	5.01	2.60	24

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
212.39 – –246.18	6	16.87	0.36	-33
Seconds/sweep at blade tip **				
0.272583	6	16.68	0.36	-32
0.343807	0	1.72	0	-5
0.374882	0	0.17	0	-1
0.403091	6	2.35	2.56	11
0.407945	1	0.38	2.64	2
0.421219	0	0.54	0	-2
0.447299	0	0.03	0	0
0.493765	0	0.15	0	0
0.502071	7	6.13	1.14	3
0.503748	2	1.15	1.75	3
0.507659	11	3.14	3.50	24
0.554769	0	0.21	0	-1
0.694529	0	0.35	0	-1
Seconds/sweep at blade tip **				
0.2726	6	16.68	0.36	-32
0.3438 – –0.4938	7	5.34	1.31	5
0.5021 – –0.6945	20	10.97	1.82	27
Rotor plane (m^2) swept/s **				
1498.8	0	1.72	0	-5
1518.1	1	0.38	2.64	2
1660.5	2	1.15	1.75	3
1718.4	0	0.54	0	-2
1795.7	6	2.35	2.56	11
1859.3	0	0.21	0	-1
2141.4	7	6.13	1.14	3
2780.4	0	0.17	0	-1
3049.7	11	3.14	3.50	24
3286.5	6	16.68	0.36	-32
4014.2	0	0.03	0	0
4487.2	0	0.35	0	-1
5645.9	0	0.15	0	0
Rotor plane (m^2) swept/s				
1499 - –1859	9	6.34	1.42	8
2141	7	6.13	1.14	3
2780 - –3287	17	20.00	0.85	-9
4014 - –5646	0	0.53	0	-2
Tower type **				
Vertical axis	2	1.35	1.48	2
Tubular	24	12.55	1.91	35
Lattice	7	19.10	0.37	-37
Tower height (m) **				
14.0	0	0.86	0	-3
18.5	6	12.22	0.49	-19
24.0	0	0.17	0	-1
24.6	14	14.43	0.97	-1

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
25.2	11	3.12	3.52	24
29.5	2	1.15	1.75	3
32.3	0	0.21	0	-1
36.9	0	0.03	0	0
43.1	0	0.82	0	-2
Tower height (m) [t]				
14.0	0	0.86	0	-3
18.5	6	12.22	0.49	-19
24.0 – –25.2	25	17.72	1.41	22
29.5 – –32.3	2	1.35	1.48	2
36.9 – –43.1	0	0.84	0	-3
Rotor orientation to wind *				
Faces wind	26	18.21	1.43	24
Away from wind	5	13.44	0.37	-26
Vertical axis	2	1.35	1.48	2
Blade color scheme				
White	33	32.21	1.02	2
Black stripes	0	0.14	0	0
Red stripes	0	0.03	0	0
Red tips	0	0.28	0	-1
Green tips	0	0.35	0	-1
Perch guard				
None	33	32.64	1.01	1
Wire netting	0	0.36	0	-1
Derelict turbines				
Operating and away from derelict	32	30.44	1.05	5
Derelict	0	1.15	0	-3
Next to derelict	1	1.42	0.71	-1
Height (m) of low blade reach **				
4.0	2	1.35	1.48	2
5.1	0	0.86	0	-3
8.0	0	0.35	0	-1
8.9	0	0.15	0	0
9.6	5	10.15	0.49	-16
11.1	1	0.35	2.83	2
11.8	0	1.72	0	-5
12.0	0	0.03	0	0
13.5	11	3.12	3.52	24
14.4	0	0.17	0	-1
14.9	7	6.13	1.14	3
15.7	1	4.86	0.21	-12
16.6	6	2.89	2.08	9
17.2	0	0.03	0	0
25.2	0	0.02	0	0
28.9	0	0.01	0	0
34.2	0	0.82	0	-2
Height (m) of low blade reach [t]				

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
4.0 – –5.1	2	2.21	0.90	-1
8.0 – –9.6	5	10.64	0.47	-17
11.1 – –14.85	19	11.53	1.65	23
15.7 – –17.2	7	7.77	0.90	-2
25.2 – –34.2	0	0.84	0	-3
Height (m) of high blade reach *				
22.9	0	0.86	0	-3
25.3	0	1.72	0	-5
25.9	1	0.35	2.83	2
27.4	5	10.15	0.49	-16
29.5	2	1.15	1.75	3
32.0	0	0.03	0	0
32.3	0	0.21	0	-1
32.6	6	2.89	2.08	9
33.5	1	4.86	0.21	-12
33.6	0	0.17	0	-1
34.4	7	6.13	1.14	3
36.9	11	3.12	3.52	24
37.2	0	0.03	0	0
40.3	0	0.15	0	0
41.2	0	0.35	0	-1
44.9	0	0.01	0	0
48.6	0	0.02	0	0
52.0	0	0.82	0	-2
Height (m) of high blade reach **				
22.9 – –27.4	6	13.08	0.46	-21
29.5 – –33.6	9	9.29	0.97	-1
34.4	7	6.13	1.14	3
36.9 – –52.0	11	4.49	2.45	20
Wind wall *				
Not in wind wall	33	28.37	1.16	14
In wind wall	0	4.63	0	-14
Position in string **				
End	12	7.32	1.64	14
Edge of gap	9	2.96	3.04	18
Interior	12	22.59	0.53	-32
Non-operational	0	0.11	0	0
Location in wind farm				
Edge of farm	3	4.31	0.70	-4
Edge of local cluster	6	3.42	1.75	8
Interior of wind farm	24	25.16	0.95	-4
Turbine congestion (no. in 300 m) *				
0 - –12	8	3.79	2.11	13
13 - –24	15	14.93	1.00	0
25 - –36	2	8.08	0.25	-18
37 - –72	8	6.18	1.3	6
Elevation (m) **				

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
85 - –135	12	4.92	2.44	21
135 - –185	14	6.95	2.01	21
185 - –235	6	4.44	1.35	5
235 - –285	0	2.06	0	-6
285 - –335	1	5.72	0.17	-14
335 - –385	0	3.80	0	-12
385 - –535	0	5.10	0	-15
Slope grade (degrees)				
0	13	13.12	0.99	0
2 - –5	1	2.60	0.38	-5
6 - –14	7	8.07	0.87	-3
15 - –58	12	9.18	1.31	9
Physical relief *				
Peak	0	0.57	0	-2
Plateau	6	2.29	2.62	11
Ridge crest	10	10.62	0.94	-2
Ridgeline	1	6.68	0.15	-17
Slope	15	11.13	1.35	12
Saddle	1	1.46	0.68	-1
Ravine	0	0.25	0	-1
Canyon **				
Not in canyon	16	27.97	0.57	-36
In canyon	17	5.03	3.38	36
Slope aspect [t]				
None (flat)	10	9.54	1.05	1
North-facing	0	4.79	0	-14
Northeast	1	2.14	0.47	-3
East	1	2.78	0.36	-5
Southeast	6	3.75	1.60	7
South	5	2.72	1.84	7
Southwest	1	0.58	1.74	1
West	0	1.22	0	-4
Northwest	9	5.43	1.66	11
Slope aspect				
None (flat)	10	9.54	1.05	1
East-northeast	2	4.92	0.41	-9
South-southeast	11	6.47	1.70	14
West-southwest	1	1.80	0.56	-2
North-northwest	9	10.22	0.88	-4
Edge index at tower base				
No edge	1	1.26	0.79	-1
Some lateral edge	3	3.15	0.95	0
Lots lateral edge	10	10.33	0.97	-1
Some vertical edge	8	10.53	0.76	-8
Lots vertical edge	11	6.78	1.62	13
Lots vertical and lateral edge	0	0.95	0	-3
Rockpiles ≤ 50 m away				

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
None	27	27.59	0.98	-2
1	2	3.04	0.66	-3
≥ 2	4	2.37	1.69	5
Rodent control through 2001 **				
Unknown	0	0.40	0	-1
None	8	7.61	1.05	1
Control	19	8.83	2.15	31
Intense control	6	16.16	0.37	-31
Rodent control through 2002 **				
Unknown	0	0.40	0	-1
None	4	5.62	0.71	-5
Control	19	8.84	2.15	31
Intense control	10	18.14	0.55	-25
Cattle pats 40 m from turbines				
0	2	3.04	0.66	-3
1 - –9	19	15.28	1.24	12
10 - –25	10	10.23	0.98	-1
> 25	1	3.44	0.29	-8
Cattle pats at turbines *				
0 - –2	5	4.16	1.20	3
3 - –9	3	10.87	0.28	-25
10 - –25	17	10.47	1.62	20
> 25	7	6.50	1.08	2
Cottontails 40 m from turbines				
No pellets	25	24.89	1.00	0
Some pellets	4	5.63	0.71	-5
Abundant pellets	3	1.48	2.03	5
Cottontails at turbines [t]				
No pellets	24	24.38	0.98	-1
Some pellets	3	5.58	0.54	-8
Abundant pellets	5	2.04	2.45	9
Vegetation height (cm) [t]				
0 - –10	3	5.50	0.55	-8
11 - –20	9	10.38	0.87	-4
21 - –35	8	9.74	0.82	-5
> 35	12	6.38	1.88	18
Pocket gopher clusting **				
Obs/Exp in 15 m = 0	3	1.28	2.34	9
Obs/Exp in 15 m < 1.5	6	2.13	2.82	20
Obs/Exp in 15 m = 1.5–-3.0	8	7.26	1.10	4
Obs/Exp in 15 m > 3	2	8.33	0.24	-33
Ground squirrel clustering				
Obs/Exp in 15 m = 0	5	6.70	0.75	-9
Obs/Exp in 15 m ≤ 1.14	11	7.37	1.49	19
Obs/Exp in 15 m > 1.14	3	4.94	0.61	-10
Pocket gopher density ≤ 90 m				
0 – –1.4/ha	5	6.20	0.81	-7

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
1.41 – –3.5/ha	6	5.86	1.02	1
> 3.5/ha	7	5.91	1.18	6
Ground squirrel density ≤ 90 m				
0/ha	0	3.38	0	-18
0.01 – –5.99/ha	13	11.12	1.17	10
≥ 6/ha	6	4.50	1.33	8
Clustering of all burrows **				
Obs/Exp in 15 m = 0–-1.2	12	3.94	3.05	42
Obs/Exp in 15 m = 1.2–-3.0	6	9.86	0.61	-20
Obs/Exp in 15 m > 3	1	5.21	0.19	-22
Density of all burrow systems *				
< 5/ha	3	7.32	0.41	-23
5 – –9/ha	10	5.59	1.79	23
> 9/ha	6	6.09	0.99	0
Season of the year*				
Spring	14	8.12	1.72	20
Summer	8	7.24	1.10	3
Fall	0	5.09	0	-18
Winter	7	8.54	0.82	-5

Table C8. Chi-square test statistics and derived measures of effect for California horned larks.

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
Turbine model				
Micon	3	1.64	1.83	6
Bonus	10	6.47	1.55	15
Danwin	0	0.12	0	-1
Flowind	1	0.94	1.06	0
Windmatic	0	0.26	0	-1
Enertech	0	1.20	0	-5
KCS-56	9	11.63	0.77	-11
KVS-33	0	0.24	0	-1
Howden	0	0.10	0	0
Nordtank	0	0.38	0	-2
W.E.G.	0	0.02	0	0
Rated turbine power (kW) *				
40	0	1.20	0	-5
65	3	2.28	1.32	3
100	9	11.63	0.77	-11
110	0	0.12	0	-1
120	10	4.28	2.34	25
150	0	2.99	0	-13
250	1	0.17	5.94	4
330	0	0.10	0	0
400	0	0.24	0	-1
Rotor diameter (m) *				
13.5 – –14.8	0	1.46	0	-6
16.0	3	2.02	1.49	4
17.2 – –17.8	9	12.43	0.72	-15
19.1 – –19.5	11	4.54	2.42	28
23.4 – –25.2	0	2.21	0	-10
31.4 – –33.2	0	0.34	0	-1
Blade tip speed (kph) *				
136.77	0	0.26	0	-1
143.20	0	0.38	0	-2
146.42	10	4.28	2.34	25
148.03	0	1.20	0	-5
149.64	3	1.64	1.83	6
173.77	0	2.19	0	-10
180.21	0	0.24	0	-1
193.08	0	0.92	0	-4
194.69	1	0.14	6.93	4
212.39	0	0.02	0	0
239.74	0	0.10	0	0
246.18	9	11.63	0.77	-11
Blade tip speed (kph) [t]				
137.77 – –149.64	13	7.75	1.68	23
173.77 – –194.69	1	3.49	0.29	-11

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
212.39 – –246.18	9	11.76	0.77	-12
Seconds/sweep at blade tip [t]				
0.272583	9	11.63	0.77	-11
0.343807	0	1.20	0	-5
0.374882	0	0.12	0	-1
0.403091	3	1.64	1.83	6
0.407945	0	0.26	0	-1
0.421219	0	0.38	0	-2
0.447299	0	0.02	0	0
0.493765	0	0.10	0	0
0.502071	10	4.28	2.34	25
0.503748	0	0.80	0	-3
0.507659	0	2.19	0	-10
0.554769	1	0.14	6.93	4
0.694529	0	0.24	0	-1
Seconds/sweep at blade tip				
0.2726	9	11.63	0.77	-11
0.3438 – –0.4938	3	3.72	0.81	-3
0.5021 – –0.6945	11	7.65	1.44	15
Rotor plane (m^2) swept/s [t]				
1498.8	0	1.20	0	-5
1518.1	0	0.26	0	-1
1660.5	0	0.80	0	-3
1718.4	0	0.38	0	-2
1795.7	3	1.64	1.83	6
1859.3	1	0.14	6.93	4
2141.4	10	4.28	2.34	25
2780.4	0	0.12	0	-1
3049.7	0	2.19	0	-10
3286.5	9	11.63	0.77	-11
4014.2	0	0.02	0	0
4487.2	0	0.24	0	-1
5645.9	0	0.10	0	0
Rotor plane (m^2) swept/s *				
1499 - –1859	4	4.42	0.91	-2
2141	10	4.28	2.34	25
2780 - –3287	9	13.94	0.65	-21
4014 - –5646	0	0.37	0	-2
Tower type				
Vertical axis	1	0.94	1.06	0
Tubular	13	8.74	1.49	19
Lattice	9	13.31	0.68	-19
Tower height (m) [t]				
14.0	0	0.60	0	-3
18.5	5	8.52	0.59	-15
24.0	0	0.12	0	-1
24.6	16	10.06	1.59	26

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
25.2	0	2.18	0	-9
29.5	0	0.80	0	-3
32.3	1	0.14	6.93	4
36.9	0	0.02	0	0
43.1	1	0.57	1.76	2
Tower height (m)				
14.0	0	0.60	0	-3
18.5	5	8.52	0.59	-15
24.0 – –25.2	16	12.35	1.30	16
29.5 – –32.3	1	0.94	1.06	0
36.9 – –43.1	1	0.59	1.71	2
Rotor orientation to wind				
Faces wind	14	12.69	1.10	6
Away from wind	8	9.37	0.85	-6
Vertical axis	1	0.94	1.06	0
Blade color scheme				
White	23	22.45	1.02	2
Black stripes	0	0.09	0	0
Red stripes	0	0.02	0	0
Red tips	0	0.20	0	-1
Green tips	0	0.24	0	-1
Perch guard				
None	23	22.75	1.01	1
Wire netting	0	0.25	0	-1
Derelict turbines [t]				
Operating and away from derelict	20	21.21	0.94	-5
Derelict	0	0.80	0	-3
Next to derelict	3	0.99	3.04	9
Height (m) of low blade reach				
4.0	1	0.94	1.06	0
5.1	0	0.60	0	-3
8.0	0	0.24	0	-1
8.9	0	0.10	0	0
9.6	5	7.07	0.71	-9
11.1	0	0.25	0	-1
11.8	0	1.20	0	-5
12.0	0	0.02	0	0
13.5	0	2.18	0	-9
14.4	0	0.12	0	-1
14.9	10	4.28	2.34	25
15.7	3	3.39	0.89	-2
16.6	3	2.01	1.49	4
17.2	0	0.02	0	0
25.2	0	0.01	0	0
28.9	0	0.00	0	0
34.2	1	0.57	1.76	2
Height (m) of low blade reach				

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
4.0 – –5.1	1	1.54	0.65	-2
8.0 – –9.6	5	7.42	0.67	-11
11.1 – –14.85	10	8.04	1.24	9
15.7 – –17.2	6	5.42	1.11	3
25.2 – –34.2	1	0.59	1.71	2
Height (m) of high blade reach				
22.9	0	0.60	0	-3
25.3	0	1.20	0	-5
25.9	0	0.25	0	-1
27.4	5	7.07	0.71	-9
29.5	0	0.80	0	-3
32.0	0	0.02	0	0
32.3	1	0.14	6.93	4
32.6	3	2.01	1.49	4
33.5	3	3.39	0.89	-2
33.6	0	0.12	0	-1
34.4	10	4.28	2.34	25
36.9	0	2.18	0	-9
37.2	0	0.02	0	0
40.3	0	0.10	0	0
41.2	0	0.24	0	-1
44.9	0	0.00	0	0
48.6	0	0.01	0	0
52.0	1	0.57	1.76	2
Height (m) of high blade reach *				
22.9 – –27.4	5	9.12	0.55	-18
29.5 – –33.6	7	6.48	1.08	2
34.4	10	4.28	2.34	25
36.9 – –52.0	1	3.13	0.32	-9
Wind wall				
Not in wind wall	21	19.77	1.06	5
In wind wall	2	3.23	0.62	-5
Position in string *				
End	6	5.10	1.18	4
Edge of gap	6	2.06	2.91	17
Interior	11	15.75	0.70	-21
Non-operational	0	0.08	0	0
Location in wind farm				
Edge of farm	5	2.88	1.74	10
Edge of local cluster	1	2.28	0.44	-6
Interior of wind farm	16	16.78	0.95	-4
Turbine congestion (no. in 300 m)				
0 - –12	1	2.64	0.38	-7
13 - –24	13	10.41	1.25	11
25 - –36	6	5.63	1.07	2
37 - –72	3	4.30	0.70	-6
Elevation (m)				

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
85 - –135	5	3.43	1.46	7
135 - –185	4	4.85	0.83	-4
185 - –235	4	3.09	1.29	4
235 - –285	1	1.44	0.70	-2
285 - –335	4	3.98	1.00	0
335 - –385	1	2.65	0.38	-7
385 - –535	4	3.56	1.13	2
Slope grade (degrees)				
0	7	9.15	0.77	-9
2 - –5	0	1.81	0.00	-8
6 - –14	5	5.62	0.89	-3
15 - –58	11	6.40	1.72	20
Physical relief				
Peak	0	0.40	0	-2
Plateau	1	1.60	0.63	-3
Ridge crest	8	7.40	1.08	3
Ridgeline	5	4.65	1.07	2
Slope	8	7.76	1.03	1
Saddle	1	1.02	0.98	0
Ravine	0	0.17	0	-1
Canyon				
Not in canyon	21	19.49	1.08	7
In canyon	2	3.51	0.57	-7
Slope aspect				
None (flat)	6	6.65	0.90	-3
North-facing	7	3.34	2.10	16
Northeast	2	1.49	1.34	2
East	2	1.94	1.03	0
Southeast	3	2.61	1.15	2
South	1	1.89	0.53	-4
Southwest	0	0.40	0	-2
West	1	0.85	1.17	1
Northwest	1	3.79	0.26	-12
Slope aspect				
None (flat)	6	6.65	0.90	-3
East-northeast	4	3.43	1.17	2
South-southeast	4	4.51	0.89	-2
West-southwest	1	1.25	0.80	-1
North-northwest	8	7.12	1.12	4
Edge index at tower base				
No edge	0	0.88	0	-4
Some lateral edge	2	2.20	0.91	-1
Lots lateral edge	7	7.20	0.97	-1
Some vertical edge	5	7.34	0.68	-10
Lots vertical edge	9	4.73	1.90	19
Lots vertical and lateral edge	0	0.66	0	-3
Rockpiles ≤ 50 m away				

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
None	16	15.89	1.01	1
1	1	1.75	0.57	-4
≥ 2	2	1.37	1.46	3
Rodent control through 2001				
Unknown	0	0.28	0	-1
None	4	5.31	0.75	-6
Control	7	6.15	1.14	4
Intense control	12	11.26	1.07	3
Rodent control through 2002				
Unknown	0	0.28	0	-1
None	3	3.92	0.77	-4
Control	7	6.16	1.14	4
Intense control	13	12.64	1.03	2
Cattle pats 40 m from turbines				
0	1	2.09	0.48	-5
1 - –9	12	10.51	1.14	7
10 - –25	7	7.03	1.00	0
> 25	2	2.37	0.84	-2
Cattle pats at turbines				
0 - –2	1	2.86	0.35	-8
3 - –9	11	7.47	1.47	16
10 - –25	5	7.20	0.69	-10
> 25	5	4.47	1.12	2
Cottontails 40 m from turbines				
No pellets	18	17.11	1.05	4
Some pellets	3	3.87	0.78	-4
Abundant pellets	1	1.02	0.98	0
Cottontails at turbines				
No pellets	20	16.76	1.19	15
Some pellets	1	3.84	0.26	-13
Abundant pellets	1	1.40	0.71	-2
Vegetation height (cm)				
0 - –10	6	3.78	1.59	10
11 - –20	4	7.14	0.56	-14
21 - –35	8	6.69	1.20	6
> 35	4	4.39	0.91	-2
Pocket gopher clusting				
Obs/Exp in 15 m = 0	1	0.68	1.48	3
Obs/Exp in 15 m < 1.5	3	1.12	2.68	19
Obs/Exp in 15 m = 1.5-3.0	4	3.82	1.05	2
Obs/Exp in 15 m > 3	2	4.38	0.46	-24
Ground squirrel clustering				
Obs/Exp in 15 m = 0	5	3.53	1.42	15
Obs/Exp in 15 m ≤ 1.14	2	3.88	0.52	-19
Obs/Exp in 15 m > 1.14	3	2.60	1.15	4
Pocket gopher density ≤ 90 m				
0 – –1.4/ha	3	3.44	0.87	-4

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
1.41 – –3.5/ha	2	3.26	0.61	-13
> 3.5/ha	5	3.28	1.52	17
Ground squirrel density ≤ 90 m				
0/ha	3	1.78	1.68	12
0.01 – –5.99/ha	4	5.85	0.68	-19
≥ 6/ha	3	2.37	1.27	6
Clustering of all burrows [t]				
Obs/Exp in 15 m = 0–-1.2	5	2.07	2.41	29
Obs/Exp in 15 m = 1.2–-3.0	3	5.19	0.58	-22
Obs/Exp in 15 m > 3	2	2.74	0.73	-7
Density of all burrow systems				
< 5/ha	3	3.85	0.78	-9
5 – –9/ha	2	2.94	0.68	-9
> 9/ha	5	3.21	1.56	18
Season of the year*				
Spring	4	6.16	0.65	-10
Summer	12	5.49	2.18	30
Fall	3	3.86	0.78	-4
Winter	3	6.48	0.46	-16

Table C9. Chi-square test statistics and derived measures of effect for western meadowlarks.

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
Turbine model **				
Micon	7	6.83	1.02	0
Bonus	38	26.99	1.41	11
Danwin	0	0.49	0	-1
Flowind	8	3.93	2.03	4
Windmatic	2	1.10	1.81	1
Enertech	4	5.00	0.80	-1
KCS-56	28	48.54	0.58	-21
KVS-33	3	1.00	2.99	2
Howden	1	0.43	2.31	1
Nordtank	5	1.58	3.16	4
W.E.G.	0	0.10	0	0
Rated turbine power (kW) **				
40	4	5.00	0.80	-1
65	14	9.51	1.47	5
100	28	48.54	0.58	-21
110	0	0.49	0	-1
120	23	17.85	1.29	5
150	22	12.47	1.76	10
250	1	0.70	1.42	0
330	1	0.43	2.31	1
400	3	1.00	2.99	2
Rotor diameter (m) *				
13.5 – –14.8	6	6.10	0.98	0
16.0	12	8.41	1.43	4
17.2 – –17.8	35	51.87	0.67	-18
19.1 – –19.5	24	18.94	1.27	5
23.4 – –25.2	15	9.24	1.62	6
31.4 – –33.2	4	1.44	2.78	3
Blade tip speed (kph) **				
136.77	2	1.10	1.81	1
143.20	5	1.58	3.16	4
146.42	23	17.85	1.29	5
148.03	4	5.00	0.80	-1
149.64	7	6.83	1.02	0
173.77	15	9.14	1.64	6
180.21	3	1.00	2.99	2
193.08	7	3.83	1.83	3
194.69	1	0.60	1.66	0
212.39	0	0.10	0	0
239.74	1	0.43	2.31	1
246.18	28	48.54	0.58	-21
Blade tip speed (kph) **				
137.77 – –149.64	41	32.36	1.27	9
173.77 – –194.69	26	14.57	1.78	12

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
212.39 – –246.18	29	49.07	0.59	-21
Seconds/sweep at blade tip **				
0.272583	28	48.54	0.58	-21
0.343807	4	5.00	0.80	-1
0.374882	0	0.49	0	-1
0.403091	7	6.83	1.02	0
0.407945	2	1.10	1.81	1
0.421219	5	1.58	3.16	4
0.447299	0	0.10	0	0
0.493765	1	0.43	2.31	1
0.502071	23	17.85	1.29	5
0.503748	7	3.33	2.10	4
0.507659	15	9.14	1.64	6
0.554769	1	0.60	1.66	0
0.694529	3	1.00	2.99	2
Seconds/sweep at blade tip **				
0.2726	28	48.54	0.58	-21
0.3438 – –0.4938	19	15.54	1.22	4
0.5021 – –0.6945	49	31.92	1.53	18
Rotor plane (m^2) swept/s **				
1498.8	4	5.00	0.80	-1
1518.1	2	1.10	1.81	1
1660.5	7	3.33	2.10	4
1718.4	5	1.58	3.16	4
1795.7	7	6.83	1.02	0
1859.3	1	0.60	1.66	0
2141.4	23	17.85	1.29	5
2780.4	0	0.49	0	-1
3049.7	15	9.14	1.64	6
3286.5	28	48.54	0.58	-21
4014.2	0	0.10	0	0
4487.2	3	1.00	2.99	2
5645.9	1	0.43	2.31	1
Rotor plane (m^2) swept/s *				
1499 - –1859	26	18.45	1.41	8
2141	23	17.85	1.29	5
2780 - –3287	43	58.17	0.74	-16
4014 - –5646	4	1.54	2.60	3
Tower type **				
Vertical axis	8	3.93	2.03	4
Tubular	51	36.50	1.40	15
Lattice	37	55.57	0.67	-19
Tower height (m) *				
14.0	3	2.51	1.20	1
18.5	22	35.55	0.62	-14
24.0	0	0.49	0	-1
24.6	48	41.99	1.14	6

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
25.2	15	9.08	1.65	6
29.5	7	3.33	2.10	4
32.3	1	0.60	1.66	0
36.9	0	0.08	0	0
43.1	0	2.37	0	-2
Tower height (m) *				
14.0	3	2.51	1.20	1
18.5	22	35.55	0.62	-14
24.0 – –25.2	63	51.56	1.22	12
29.5 – –32.3	8	3.93	2.03	4
36.9 – –43.1	0	2.45	0	-3
Rotor orientation to wind **				
Faces wind	64	52.97	1.21	11
Away from wind	24	39.10	0.61	-16
Vertical axis	8	3.93	2.03	4
Blade color scheme				
White	92	93.70	0.98	-2
Black stripes	0	0.39	0	0
Red stripes	0	0.08	0	0
Red tips	3	0.82	3.66	2
Green tips	1	1.00	1.00	0
Perch guard				
None	96	94.96	1.01	1
Wire netting	0	1.04	0	-1
Derelict turbines				
Operating and away from derelict	84	88.54	0.95	-5
Derelict	7	3.34	2.10	4
Next to derelict	5	4.12	1.21	1
Height (m) of low blade reach *				
4.0	8	3.93	2.03	4
5.1	3	2.51	1.20	1
8.0	3	1.00	2.99	2
8.9	1	0.43	2.31	1
9.6	16	29.52	0.54	-14
11.1	2	1.03	1.94	1
11.8	4	5.00	0.80	-1
12.0	0	0.10	0	0
13.5	15	9.08	1.65	6
14.4	0	0.49	0	-1
14.9	23	17.85	1.29	5
15.7	9	14.14	0.64	-5
16.6	12	8.39	1.43	4
17.2	0	0.07	0	0
25.2	0	0.06	0	0
28.9	0	0.02	0	0
34.2	0	2.37	0	-2
Height (m) of low blade reach *				

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
4.0 – –5.1	11	6.44	1.71	5
8.0 – –9.6	20	30.96	0.65	-11
11.1 – –14.85	44	33.55	1.31	11
15.7 – –17.2	21	22.60	0.93	-2
25.2 – –34.2	0	2.45	0	-3
Height (m) of high blade reach *				
22.9	3	2.51	1.20	1
25.3	4	5.00	0.80	-1
25.9	2	1.03	1.94	1
27.4	16	29.52	0.54	-14
29.5	7	3.33	2.10	4
32.0	0	0.07	0	0
32.3	1	0.60	1.66	0
32.6	12	8.39	1.43	4
33.5	9	14.14	0.64	-5
33.6	0	0.49	0	-1
34.4	23	17.85	1.29	5
36.9	15	9.08	1.65	6
37.2	0	0.10	0	0
40.3	1	0.43	2.31	1
41.2	3	1.00	2.99	2
44.9	0	0.02	0	0
48.6	0	0.06	0	0
52.0	0	2.37	0	-2
Height (m) of high blade reach *				
22.9 – –27.4	25	38.06	0.66	-14
29.5 – –33.6	29	27.03	1.07	2
34.4	23	17.85	1.29	5
36.9 – –52.0	19	13.07	1.45	6
Wind wall *				
Not in wind wall	90	82.54	1.09	8
In wind wall	6	13.46	0.45	-8
Position in string *				
End	32	21.28	1.50	11
Edge of gap	11	8.60	1.28	2
Interior	52	65.73	0.79	-14
Non-operational	1	0.31	3.19	1
Location in wind farm				
Edge of farm	10	12.55	0.80	-3
Edge of local cluster	13	9.95	1.31	3
Interior of wind farm	73	73.21	1.00	0
Turbine congestion (no. in 300 m)				
0 - –12	12	11.01	1.09	1
13 - –24	50	43.44	1.15	7
25 - –36	21	23.50	0.89	-3
37 - –72	13	17.96	0.72	-5
Elevation (m) **				

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
85 - –135	15	14.31	1.05	1
135 - –185	25	20.23	1.24	5
185 - –235	26	12.90	2.01	14
235 - –285	5	5.99	0.83	-1
285 - –335	9	16.63	0.54	-8
335 - –385	11	11.05	1.00	0
385 - –535	5	14.84	0.34	-10
Slope grade (degrees) [t]				
0	32	38.18	0.84	-6
2 - –5	5	7.57	0.66	-3
6 - –14	21	23.48	0.89	-3
15 - –58	38	26.71	1.42	12
Physical relief				
Peak	2	1.65	1.21	0
Plateau	10	6.66	1.50	3
Ridge crest	26	30.89	0.84	-5
Ridgeline	21	19.43	1.08	2
Slope	34	32.37	1.05	2
Saddle	1	4.26	0.23	-3
Ravine	2	0.72	2.78	1
Canyon **				
Not in canyon	67	81.36	0.82	-15
In canyon	29	14.64	1.98	15
Slope aspect				
None (flat)	25	27.76	0.90	-3
North-facing	11	13.92	0.79	-3
Northeast	4	6.23	0.64	-2
East	9	8.09	1.11	1
Southeast	11	10.91	1.01	0
South	7	7.91	0.89	-1
Southwest	2	1.68	1.19	0
West	3	3.56	0.84	-1
Northwest	24	15.80	1.52	9
Slope aspect				
None (flat)	25	27.76	0.90	-3
East-northeast	13	14.32	0.91	-1
South-southeast	18	18.81	0.96	-1
West-southwest	5	5.24	0.96	0
North-northwest	35	29.72	1.18	5
Edge index at tower base				
No edge	1	3.67	0.27	-3
Some lateral edge	11	9.17	1.20	2
Lots lateral edge	22	30.04	0.73	-8
Some vertical edge	38	30.64	1.24	8
Lots vertical edge	21	19.72	1.06	1
Lots vertical and lateral edge	3	2.76	1.09	0
Rockpiles ≤ 50 m away				

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
None	76	74.42	1.02	2
1	6	8.19	0.73	-2
≥ 2	7	6.40	1.09	1
Rodent control through 2001				
Unknown	0	1.16	0	-1
None	19	22.15	0.86	-3
Control	35	25.69	1.36	10
Intense control	42	47.01	0.89	-5
Rodent control through 2002				
Unknown	0	1.16	0	-1
None	16	16.35	0.98	0
Control	35	25.71	1.36	10
Intense control	45	52.77	0.85	-8
Cattle pats 40 m from turbines				
0	7	7.61	0.92	-1
1 - –9	40	38.21	1.05	2
10 - –25	22	25.57	0.86	-4
> 25	11	8.61	1.28	3
Cattle pats at turbines				
0 - –2	8	10.40	0.77	-3
3 - –9	21	27.18	0.77	-8
10 - –25	31	26.18	1.18	6
> 25	20	16.25	1.23	5
Cottontails 40 m from turbines				
No pellets	65	62.23	1.04	3
Some pellets	11	14.07	0.78	-4
Abundant pellets	4	3.70	1.08	0
Cottontails at turbines **				
No pellets	54	60.95	0.89	-9
Some pellets	26	13.95	1.86	15
Abundant pellets	0	5.10	0	-6
Vegetation height (cm)				
0 - –10	10	13.76	0.73	-5
11 - –20	24	25.95	0.92	-2
21 - –35	24	24.34	0.99	0
> 35	22	15.95	1.38	8
Pocket gopher clusting				
Obs/Exp in 15 m = 0	4	3.04	1.32	2
Obs/Exp in 15 m < 1.5	4	5.04	0.79	-2
Obs/Exp in 15 m = 1.5–-3.0	15	17.19	0.87	-5
Obs/Exp in 15 m > 3	22	19.73	1.12	5
Ground squirrel clustering[t]				
Obs/Exp in 15 m = 0	9	15.86	0.57	-15
Obs/Exp in 15 m ≤ 1.14	21	17.44	1.20	8
Obs/Exp in 15 m > 1.14	15	11.70	1.28	7
Pocket gopher density ≤ 90 m				
0 – –1.4/ha	14	15.49	0.90	-3

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
1.41 – –3.5/ha	20	14.66	1.36	12
> 3.5/ha	11	14.78	0.74	-8
Ground squirrel density ≤ 90 m				
0/ha	3	8.01	0.37	-11
0.01 – –5.99/ha	32	26.33	1.22	13
≥ 6/ha	10	10.66	0.94	-1
Clustering of all burrows				
Obs/Exp in 15 m = 0–-1.2	7	9.33	0.75	-5
Obs/Exp in 15 m = 1.2–-3.0	29	23.34	1.24	13
Obs/Exp in 15 m > 3	9	12.33	0.73	-7
Density of all burrow systems				
< 5/ha	13	17.33	0.75	-10
5 – –9/ha	19	13.24	1.43	13
> 9/ha	13	14.43	0.90	-3
Season of the year*				
Spring	16	26.33	0.61	-11
Summer	19	23.47	0.81	-5
Fall	15	16.51	0.91	-2
Winter	44	27.69	1.59	17

Table C10. Chi-square test statistics and derived measures of effect for Mourning doves.

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
Turbine model **				
Micon	11	2.42	4.55	25
Bonus	6	9.56	0.63	-10
Danwin	0	0.18	0	-1
Flowind	0	1.39	0	-4
Windmatic	2	0.39	5.12	5
Enertech	2	1.77	1.13	1
KCS-56	11	17.19	0.64	-18
KVS-33	0	0.36	0	-1
Howden	2	0.15	13.02	5
Nordtank	0	0.56	0	-2
W.E.G.	0	0.04	0	0
Rated turbine power (kW) **				
40	2	1.77	1.13	1
65	13	3.37	3.86	28
100	11	17.19	0.64	-18
110	0	0.18	0	-1
120	5	6.32	0.79	-4
150	1	4.42	0.23	-10
250	0	0.25	0	-1
330	2	0.15	13.02	5
400	0	0.36	0	-1
Rotor diameter (m) **				
13.5 – –14.8	4	2.16	1.85	5
16.0	11	2.98	3.69	24
17.2 – –17.8	11	18.37	0.60	-22
19.1 – –19.5	5	6.71	0.75	-5
23.4 – –25.2	1	3.27	0.31	-7
31.4 – –33.2	2	0.51	3.93	4
Blade tip speed (kph) **				
136.77	2	0.39	5.12	5
143.20	0	0.56	0	-2
146.42	5	6.32	0.79	-4
148.03	2	1.77	1.13	1
149.64	11	2.42	4.55	25
173.77	1	3.24	0.31	-7
180.21	0	0.36	0	-1
193.08	0	1.36	0	-4
194.69	0	0.21	0	-1
212.39	0	0.04	0	0
239.74	2	0.15	13.02	5
246.18	11	17.19	0.64	-18
Blade tip speed (kph) **				
137.77 – –149.64	20	11.46	1.75	25
173.77 – –194.69	1	5.16	0.19	-12

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
212.39 – –246.18	13	17.38	0.75	-13
Seconds/sweep at blade tip **				
0.272583	11	17.19	0.64	-18
0.343807	2	1.77	1.13	1
0.374882	0	0.18	0	-1
0.403091	11	2.42	4.55	25
0.407945	2	0.39	5.12	5
0.421219	0	0.56	0	-2
0.447299	0	0.04	0	0
0.493765	2	0.15	13.02	5
0.502071	5	6.32	0.79	-4
0.503748	0	1.18	0	-3
0.507659	1	3.24	0.31	-7
0.554769	0	0.21	0	-1
0.694529	0	0.36	0	-1
Seconds/sweep at blade tip **				
0.2726	11	17.19	0.64	-18
0.3438 – –0.4938	17	5.50	3.09	34
0.5021 – –0.6945	6	11.31	0.53	-16
Rotor plane (m^2) swept/s **				
1498.8	2	1.77	1.13	1
1518.1	2	0.39	5.12	5
1660.5	0	1.18	0	-3
1718.4	0	0.56	0	-2
1795.7	11	2.42	4.55	25
1859.3	0	0.21	0	-1
2141.4	5	6.32	0.79	-4
2780.4	0	0.18	0	-1
3049.7	1	3.24	0.31	-7
3286.5	11	17.19	0.64	-18
4014.2	0	0.04	0	0
4487.2	0	0.36	0	-1
5645.9	2	0.15	13.02	5
Rotor plane (m^2) swept/s **				
1499 - –1859	15	6.53	2.30	25
2141	5	6.32	0.79	-4
2780 - –3287	12	20.60	0.58	-25
4014 - –5646	2	0.55	3.67	4
Tower type [t]				
Vertical axis	0	1.39	0	-4
Tubular	19	12.93	1.47	18
Lattice	15	19.68	0.76	-14
Tower height (m)				
14.0	0	0.89	0	-3
18.5	14	12.59	1.11	4
24.0	0	0.18	0	-1
24.6	19	14.87	1.28	12

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
25.2	1	3.22	0.31	-7
29.5	0	1.18	0	-3
32.3	0	0.21	0	-1
36.9	0	0.03	0	0
43.1	0	0.84	0	-2
Tower height (m)				
14.0	0	0.89	0	-3
18.5	14	12.59	1.11	4
24.0 – –25.2	20	18.26	1.10	5
29.5 – –32.3	0	1.39	0	-4
36.9 – –43.1	0	0.87	0	-3
Rotor orientation to wind				
Faces wind	22	18.76	1.17	10
Away from wind	12	13.85	0.87	-5
Vertical axis	0	1.39	0	-4
Blade color scheme				
White	33	33.19	0.99	-1
Black stripes	0	0.14	0	0
Red stripes	0	0.03	0	0
Red tips	0	0.29	0	-1
Green tips	1	0.36	2.81	2
Perch guard				
None	34	33.63	1.01	1
Wire netting	0	0.37	0	-1
Derelict turbines [t]				
Operating and away from derelict	28	31.36	0.89	-10
Derelict	3	1.18	2.54	5
Next to derelict	3	1.46	2.05	5
Height (m) of low blade reach **				
4.0	0	1.39	0	-4
5.1	0	0.89	0	-3
8.0	0	0.36	0	-1
8.9	2	0.15	13.02	5
9.6	10	10.46	0.96	-1
11.1	2	0.37	5.49	5
11.8	2	1.77	1.13	1
12.0	0	0.04	0	0
13.5	1	3.22	0.31	-7
14.4	0	0.18	0	-1
14.9	5	6.32	0.79	-4
15.7	1	5.01	0.20	-12
16.6	11	2.97	3.70	24
17.2	0	0.03	0	0
25.2	0	0.02	0	0
28.9	0	0.01	0	0
34.2	0	0.84	0	-2
Height (m) of low blade reach				

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
4.0 – –5.1	0	2.28	0	-7
8.0 – –9.6	12	10.97	1.09	3
11.1 – –14.85	10	11.88	0.84	-6
15.7 – –17.2	12	8.01	1.50	12
25.2 – –34.2	0	0.87	0	-3
Height (m) of high blade reach **				
22.9	0	0.89	0	-3
25.3	2	1.77	1.13	1
25.9	2	0.37	5.49	5
27.4	10	10.46	0.96	-1
29.5	0	1.18	0	-3
32.0	0	0.03	0	0
32.3	0	0.21	0	-1
32.6	11	2.97	3.70	24
33.5	1	5.01	0.20	-12
33.6	0	0.18	0	-1
34.4	5	6.32	0.79	-4
36.9	1	3.22	0.31	-7
37.2	0	0.04	0	0
40.3	2	0.15	13.02	5
41.2	0	0.36	0	-1
44.9	0	0.01	0	0
48.6	0	0.02	0	0
52.0	0	0.84	0	-2
Height (m) of high blade reach				
22.9 – –27.4	14	13.48	1.04	2
29.5 – –33.6	12	9.57	1.25	7
34.4	5	6.32	0.79	-4
36.9 – –52.0	3	4.63	0.65	-5
Wind wall *				
Not in wind wall	34	29.23	1.16	14
In wind wall	0	4.77	0	-14
Position in string *				
End	16	7.54	2.12	25
Edge of gap	1	3.05	0.33	-6
Interior	17	23.28	0.73	-18
Non-operational	0	0.11	0	0
Location in wind farm *				
Edge of farm	10	4.44	2.25	16
Edge of local cluster	4	3.52	1.14	1
Interior of wind farm	20	25.93	0.77	-17
Turbine congestion (no. in 300 m)				
0 - –12	8	3.90	2.05	12
13 - –24	14	15.38	0.91	-4
25 - –36	5	8.32	0.60	-10
37 - –72	7	6.36	1.10	2
Elevation (m) **				

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
85 - –135	19	5.07	3.75	41
135 - –185	9	7.16	1.26	5
185 - –235	0	4.57	0	-13
235 - –285	0	2.12	0	-6
285 - –335	2	5.89	0.34	-11
335 - –385	2	3.91	0.51	-6
385 - –535	2	5.26	0.38	-10
Slope grade (degrees) [t]				
0	19	13.52	1.41	16
2 - –5	0	2.68	0.00	-8
6 - –14	4	8.31	0.48	-13
15 - –58	11	9.46	1.16	5
Physical relief *				
Peak	0	0.58	0	-2
Plateau	6	2.36	2.54	11
Ridge crest	5	10.94	0.46	-17
Ridgeline	5	6.88	0.73	-6
Slope	18	11.47	1.57	19
Saddle	0	1.51	0	-4
Ravine	0	0.26	0	-1
Canyon [t]				
Not in canyon	25	28.82	0.87	-11
In canyon	9	5.18	1.74	11
Slope aspect *				
None (flat)	10	9.83	1.02	0
North-facing	7	4.93	1.42	6
Northeast	1	2.21	0.45	-4
East	2	2.87	0.70	-3
Southeast	3	3.86	0.78	-3
South	3	2.80	1.07	1
Southwest	3	0.59	5.06	7
West	4	1.26	3.17	8
Northwest	1	5.60	0.18	-14
Slope aspect **				
None (flat)	10	9.83	1.02	0
East-northeast	3	5.07	0.59	-6
South-southeast	6	6.66	0.90	-2
West-southwest	7	1.85	3.78	15
North-northwest	8	10.53	0.76	-7
Edge index at tower base [t]				
No edge	2	1.30	1.54	2
Some lateral edge	6	3.25	1.85	8
Lots lateral edge	7	10.64	0.66	-11
Some vertical edge	7	10.85	0.64	-11
Lots vertical edge	9	6.99	1.29	6
Lots vertical and lateral edge	3	0.98	3.07	6
Rockpiles ≤ 50 m away				

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
None	29	25.92	1.12	10
1	2	2.85	0.70	-3
≥ 2	0	2.23	0	-7
Rodent control through 2001 **				
Unknown	0	0.41	0	-1
None	18	7.84	2.29	30
Control	5	9.10	0.55	-12
Intense control	11	16.65	0.66	-17
Rodent control through 2002 **				
Unknown	0	0.41	0	-1
None	14	5.79	2.42	24
Control	5	9.11	0.55	-12
Intense control	15	18.69	0.80	-11
Cattle pats 40 m from turbines				
0	2	2.76	0.72	-3
1 - –9	15	13.85	1.08	4
10 - –25	7	9.27	0.76	-8
> 25	5	3.12	1.60	6
Cattle pats at turbines				
0 - –2	7	3.77	1.86	11
3 - –9	10	9.85	1.02	1
10 - –25	9	9.49	0.95	-2
> 25	3	5.89	0.51	-10
Cottontails 40 m from turbines				
No pellets	18	22.56	0.80	-16
Some pellets	9	5.10	1.76	13
Abundant pellets	2	1.34	1.49	2
Cottontails at turbines				
No pellets	18	22.09	0.81	-14
Some pellets	9	5.06	1.78	14
Abundant pellets	2	1.85	1.08	1
Vegetation height (cm)				
0 - –10	6	4.99	1.20	3
11 - –20	9	9.41	0.96	-1
21 - –35	6	8.82	0.68	-10
> 35	8	5.78	1.38	8
Pocket gopher clusting **				
Obs/Exp in 15 m = 0	5	0.88	5.70	32
Obs/Exp in 15 m < 1.5	2	1.46	1.37	4
Obs/Exp in 15 m = 1.5-3.0	4	4.97	0.81	-7
Obs/Exp in 15 m > 3	2	5.70	0.35	-28
Ground squirrel clustering **				
Obs/Exp in 15 m = 0	0	4.58	0	-35
Obs/Exp in 15 m ≤ 1.14	5	5.04	0.99	0
Obs/Exp in 15 m > 1.14	8	3.38	2.37	36
Pocket gopher density ≤ 90 m[t]				
0 – –1.4/ha	8	4.47	1.79	27

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
1.41 – –3.5/ha	4	4.23	0.94	-2
> 3.5/ha	1	4.27	0.23	-25
Ground squirrel density ≤ 90 m				
0/ha	0	2.32	0	-18
0.01 – –5.99/ha	8	7.61	1.05	3
≥ 6/ha	5	3.08	1.62	15
Clustering of all burrows				
Obs/Exp in 15 m = 0–-1.2	5	2.70	1.86	18
Obs/Exp in 15 m = 1.2–-3.0	7	6.74	1.04	2
Obs/Exp in 15 m > 3	1	3.56	0.28	-20
Density of all burrow systems				
< 5/ha	4	5.01	0.80	-8
5 – –9/ha	5	3.83	1.31	9
> 9/ha	4	4.17	0.96	-1
Season of the year**				
Spring	4	9.52	0.42	-16
Summer	5	8.49	0.59	-10
Fall	0	5.97	0	-18
Winter	25	10.02	2.50	44

Table C11. Chi-square test statistics and derived measures of effect for rock doves.

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
Turbine model **				
Micon	46	13.87	3.32	16
Bonus	35	54.82	0.64	-10
Danwin	0	1.00	0	-1
Flowind	2	7.99	0.25	-3
Windmatic	2	2.24	0.89	0
Enertech	11	10.16	1.08	0
KCS-56	98	98.59	0.99	0
KVS-33	0	2.04	0	-1
Howden	1	0.88	1.13	0
Nordtank	0	3.21	0	-2
W.E.G.	0	0.20	0	0
Rated turbine power (kW) **				
40	11	10.16	1.08	0
65	48	19.32	2.48	15
100	98	98.59	0.99	0
110	0	1.00	0	-1
120	27	36.25	0.74	-5
150	10	25.33	0.39	-8
250	0	1.43	0	-1
330	1	0.88	1.13	0
400	0	2.04	0	-1
Rotor diameter (m) **				
13.5 – –14.8	13	12.40	1.05	0
16.0	46	17.08	2.69	15
17.2 – –17.8	100	105.36	0.95	-3
19.1 – –19.5	27	38.47	0.70	-6
23.4 – –25.2	8	18.77	0.43	-6
31.4 – –33.2	1	2.92	0.34	-1
Blade tip speed (kph) **				
136.77	2	2.24	0.89	0
143.20	0	3.21	0	-2
146.42	27	36.25	0.74	-5
148.03	11	10.16	1.08	0
149.64	46	13.87	3.32	16
173.77	8	18.57	0.43	-5
180.21	0	2.04	0	-1
193.08	2	7.77	0.26	-3
194.69	0	1.22	0	-1
212.39	0	0.20	0	0
239.74	1	0.88	1.13	0
246.18	98	98.59	0.99	0
Blade tip speed (kph) **				
137.77 – –149.64	86	65.73	1.31	10
173.77 – –194.69	10	29.60	0.34	-10

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
212.39 – –246.18	99	99.67	0.99	0
Seconds/sweep at blade tip **				
0.272583	98	98.59	0.99	0
0.343807	11	10.16	1.08	0
0.374882	0	1.00	0	-1
0.403091	46	13.87	3.32	16
0.407945	2	2.24	0.89	0
0.421219	0	3.21	0	-2
0.447299	0	0.20	0	0
0.493765	1	0.88	1.13	0
0.502071	27	36.25	0.74	-5
0.503748	2	6.77	0.30	-2
0.507659	8	18.57	0.43	-5
0.554769	0	1.22	0	-1
0.694529	0	2.04	0	-1
Seconds/sweep at blade tip **				
0.2726	98	98.59	0.99	0
0.3438 – –0.4938	60	31.57	1.90	15
0.5021 – –0.6945	37	64.84	0.57	-14
Rotor plane (m^2) swept/s **				
1498.8	11	10.16	1.08	0
1518.1	2	2.24	0.89	0
1660.5	2	6.77	0.30	-2
1718.4	0	3.21	0	-2
1795.7	46	13.87	3.32	16
1859.3	0	1.22	0	-1
2141.4	27	36.25	0.74	-5
2780.4	0	1.00	0	-1
3049.7	8	18.57	0.43	-5
3286.5	98	98.59	0.99	0
4014.2	0	0.20	0	0
4487.2	0	2.04	0	-1
5645.9	1	0.88	1.13	0
Rotor plane (m^2) swept/s **				
1499 - –1859	61	37.47	1.63	12
2141	27	36.25	0.74	-5
2780 - –3287	106	118.16	0.90	-6
4014 - –5646	1	3.12	0.32	-1
Tower type [t]				
Vertical axis	2	7.99	0.25	-3
Tubular	82	74.14	1.11	4
Lattice	111	112.88	0.98	-1
Tower height (m) **				
14.0	8	5.09	1.57	1
18.5	55	72.22	0.76	-9
24.0	0	1.00	0	-1
24.6	121	85.28	1.42	18

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
25.2	8	18.45	0.43	-5
29.5	2	6.77	0.30	-2
32.3	0	1.22	0	-1
36.9	0	0.15	0	0
43.1	1	4.82	0.21	-2
Tower height (m) **				
14.0	8	5.09	1.57	1
18.5	55	72.22	0.76	-9
24.0 – –25.2	129	104.74	1.23	12
29.5 – –32.3	2	7.99	0.25	-3
36.9 – –43.1	1	4.97	0.20	-2
Rotor orientation to wind **				
Faces wind	137	107.59	1.27	15
Away from wind	56	79.42	0.71	-12
Vertical axis	2	7.99	0.25	-3
Blade color scheme				
White	195	190.33	1.02	2
Black stripes	0	0.80	0	0
Red stripes	0	0.16	0	0
Red tips	0	1.67	0	-1
Green tips	0	2.04	0	-1
Perch guard **				
None	187	192.88	0.97	-3
Wire netting	8	2.12	3.77	3
Derelict turbines				
Operating and away from derelict	186	179.85	1.03	3
Derelict	2	6.78	0.30	-2
Next to derelict	7	8.37	0.84	-1
Height (m) of low blade reach **				
4.0	2	7.99	0.25	-3
5.1	8	5.09	1.57	1
8.0	0	2.04	0	-1
8.9	1	0.88	1.13	0
9.6	42	59.97	0.70	-9
11.1	2	2.09	0.96	0
11.8	11	10.16	1.08	0
12.0	0	0.20	0	0
13.5	8	18.45	0.43	-5
14.4	0	1.00	0	-1
14.9	27	36.25	0.74	-5
15.7	47	28.71	1.64	9
16.6	46	17.05	2.70	15
17.2	0	0.15	0	0
25.2	0	0.12	0	0
28.9	0	0.04	0	0
34.2	1	4.82	0.21	-2
Height (m) of low blade reach **				

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
4.0 – –5.1	10	13.08	0.76	-2
8.0 – –9.6	43	62.89	0.68	-10
11.1 – –14.85	48	68.15	0.70	-10
15.7 – –17.2	93	45.91	2.03	24
25.2 – –34.2	1	4.97	0.20	-2
Height (m) of high blade reach **				
22.9	8	5.09	1.57	1
25.3	11	10.16	1.08	0
25.9	2	2.09	0.96	0
27.4	42	59.97	0.70	-9
29.5	2	6.77	0.30	-2
32.0	0	0.15	0	0
32.3	0	1.22	0	-1
32.6	46	17.05	2.70	15
33.5	47	28.71	1.64	9
33.6	0	1.00	0	-1
34.4	27	36.25	0.74	-5
36.9	8	18.45	0.43	-5
37.2	0	0.20	0	0
40.3	1	0.88	1.13	0
41.2	0	2.04	0	-1
44.9	0	0.04	0	0
48.6	0	0.12	0	0
52.0	1	4.82	0.21	-2
Height (m) of high blade reach **				
22.9 – –27.4	63	77.31	0.81	-7
29.5 – –33.6	95	54.90	1.73	21
34.4	27	36.25	0.74	-5
36.9 – –52.0	10	26.54	0.38	-8
Wind wall *				
Not in wind wall	157	167.65	0.94	-5
In wind wall	38	27.35	1.39	5
Position in string				
End	41	43.23	0.95	-1
Edge of gap	11	17.47	0.63	-3
Interior	143	133.51	1.07	5
Non-operational	0	0.64	0	0
Location in wind farm **				
Edge of farm	35	25.48	1.37	5
Edge of local cluster	36	20.21	1.78	8
Interior of wind farm	124	148.70	0.83	-13
Turbine congestion (no. in 300 m) **				
0 - –12	9	22.25	0.40	-7
13 - –24	70	87.78	0.80	-9
25 - –36	64	47.49	1.35	9
37 - –72	51	36.30	1.40	8
Elevation (m) **				

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
85 - –135	64	29.06	2.20	18
135 - –185	44	41.09	1.07	1
185 - –235	14	26.21	0.53	-6
235 - –285	11	12.17	0.90	-1
285 - –335	46	33.77	1.36	6
335 - –385	13	22.45	0.58	-5
385 - –535	3	30.14	0.10	-14
Slope grade (degrees) *				
0	98	77.54	1.26	10
2 - –5	17	15.38	1.10	1
6 - –14	37	47.69	0.78	-5
15 - –58	43	54.26	0.79	-6
Physical relief **				
Peak	2	3.35	0.60	-1
Plateau	33	13.53	2.44	10
Ridge crest	43	62.74	0.69	-10
Ridgeline	22	39.46	0.56	-9
Slope	70	65.76	1.06	2
Saddle	22	8.65	2.54	7
Ravine	3	1.46	2.05	1
Canyon				
Not in canyon	171	165.27	1.03	3
In canyon	24	29.73	0.81	-3
Slope aspect **				
None (flat)	65	56.38	1.15	4
North-facing	18	28.27	0.64	-5
Northeast	11	12.65	0.87	-1
East	15	16.44	0.91	-1
Southeast	18	22.15	0.81	-2
South	13	16.06	0.81	-2
Southwest	5	3.40	1.47	1
West	20	7.23	2.77	7
Northwest	30	32.10	0.93	-1
Slope aspect **				
None (flat)	65	56.38	1.15	4
East-northeast	26	29.08	0.89	-2
South-southeast	31	38.21	0.81	-4
West-southwest	25	10.63	2.35	7
North-northwest	48	60.37	0.80	-6
Edge index at tower base *				
No edge	8	7.45	1.07	0
Some lateral edge	30	18.63	1.61	6
Lots lateral edge	69	61.02	1.13	4
Some vertical edge	54	62.25	0.87	-4
Lots vertical edge	32	40.06	0.80	-4
Lots vertical and lateral edge	2	5.61	0.36	-2
Rockpiles ≤ 50 m away				

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
None	151	157.19	0.96	-3
1	24	17.29	1.39	4
≥ 2	13	13.51	0.96	0
Rodent control through 2001 *				
Unknown	1	2.36	0.42	-1
None	65	44.98	1.44	10
Control	41	52.18	0.79	-6
Intense control	88	95.48	0.92	-4
Rodent control through 2002 *				
Unknown	1	2.36	0.42	-1
None	50	33.22	1.51	9
Control	41	52.23	0.79	-6
Intense control	103	107.19	0.96	-2
Cattle pats 40 m from turbines *				
0	24	16.65	1.44	4
1 - –9	82	83.58	0.98	-1
10 - –25	62	55.94	1.11	3
> 25	7	18.83	0.37	-7
Cattle pats at turbines **				
0 - –2	32	22.74	1.41	5
3 - –9	74	59.45	1.24	8
10 - –25	51	57.27	0.89	-4
> 25	18	35.54	0.51	-10
Cottontails 40 m from turbines **				
No pellets	122	136.12	0.90	-8
Some pellets	36	30.79	1.17	3
Abundant pellets	17	8.10	2.10	5
Cottontails at turbines **				
No pellets	109	133.33	0.82	-14
Some pellets	44	30.51	1.44	8
Abundant pellets	22	11.17	1.97	6
Vegetation height (cm) **				
0 - –10	15	30.10	0.50	-9
11 - –20	60	56.77	1.06	2
21 - –35	76	53.25	1.43	13
> 35	24	34.89	0.69	-6
Pocket gopher clusting **				
Obs/Exp in 15 m = 0	15	7.29	2.06	7
Obs/Exp in 15 m < 1.5	16	12.10	1.32	4
Obs/Exp in 15 m = 1.5–-3.0	23	41.26	0.56	-17
Obs/Exp in 15 m > 3	54	47.35	1.14	6
Ground squirrel clustering **				
Obs/Exp in 15 m = 0	26	38.07	0.68	-11
Obs/Exp in 15 m ≤ 1.14	23	41.86	0.55	-17
Obs/Exp in 15 m > 1.14	59	28.07	2.10	29
Pocket gopher density ≤ 90 m **				
0 – –1.4/ha	83	36.14	2.30	45

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
1.41 – –3.5/ha	8	34.20	0.23	-25
> 3.5/ha	14	34.48	0.41	-19
Ground squirrel density ≤ 90 m				
0/ha	16	19.23	0.83	-3
0.01 – –5.99/ha	72	63.19	1.14	8
≥ 6/ha	20	25.58	0.78	-5
Clustering of all burrows				
Obs/Exp in 15 m = 0–-1.2	25	22.39	1.12	2
Obs/Exp in 15 m = 1.2–-3.0	60	56.03	1.07	4
Obs/Exp in 15 m > 3	23	29.59	0.78	-6
Density of all burrow systems **				
< 5/ha	55	41.60	1.32	12
5 – –9/ha	36	31.78	1.13	4
> 9/ha	17	34.62	0.49	-16
Season of the year**				
Spring	41	51.26	0.80	-6
Summer	85	45.70	1.86	21
Fall	20	32.13	0.62	-7
Winter	37	53.91	0.69	-9

Table C12. Chi-square test statistics and derived measures of effect for European starlings.

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
Turbine model *				
Micon	11	4.77	2.31	9
Bonus	11	18.83	0.58	-12
Danwin	0	0.35	0	-1
Flowind	4	2.75	1.46	2
Windmatic	1	0.77	1.30	0
Enertech	4	3.49	1.15	1
KCS-56	31	33.87	0.92	-4
KVS-33	0	0.70	0	-1
Howden	1	0.30	3.30	1
Nordtank	4	1.10	3.63	4
W.E.G.	0	0.07	0	0
Rated turbine power (kW) *				
40	4	3.49	1.15	1
65	16	6.64	2.41	14
100	31	33.87	0.92	-4
110	0	0.35	0	-1
120	8	12.46	0.64	-7
150	6	8.70	0.69	-4
250	1	0.49	2.04	1
330	1	0.30	3.30	1
400	0	0.70	0	-1
Rotor diameter (m) **				
13.5 – –14.8	5	4.26	1.17	1
16.0	15	5.87	2.56	14
17.2 – –17.8	34	36.20	0.94	-3
19.1 – –19.5	9	13.22	0.68	-6
23.4 – –25.2	3	6.45	0.47	-5
31.4 – –33.2	1	1.00	1.00	0
Blade tip speed (kph) *				
136.77	1	0.77	1.30	0
143.20	4	1.10	3.63	4
146.42	8	12.46	0.64	-7
148.03	4	3.49	1.15	1
149.64	11	4.77	2.31	9
173.77	3	6.38	0.47	-5
180.21	0	0.70	0	-1
193.08	3	2.67	1.12	0
194.69	1	0.42	2.38	1
212.39	0	0.07	0	0
239.74	1	0.30	3.30	1
246.18	31	33.87	0.92	-4
Blade tip speed (kph)				
137.77 – –149.64	28	22.58	1.24	8
173.77 – –194.69	7	10.17	0.69	-5

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
212.39 – –246.18	32	34.25	0.93	-3
Seconds/sweep at blade tip *				
0.272583	31	33.87	0.92	-4
0.343807	4	3.49	1.15	1
0.374882	0	0.35	0	-1
0.403091	11	4.77	2.31	9
0.407945	1	0.77	1.30	0
0.421219	4	1.10	3.63	4
0.447299	0	0.07	0	0
0.493765	1	0.30	3.30	1
0.502071	8	12.46	0.64	-7
0.503748	3	2.33	1.29	1
0.507659	3	6.38	0.47	-5
0.554769	1	0.42	2.38	1
0.694529	0	0.70	0	-1
Seconds/sweep at blade tip **				
0.2726	31	33.87	0.92	-4
0.3438 – –0.4938	21	10.85	1.94	15
0.5021 – –0.6945	15	22.28	0.67	-11
Rotor plane (m^2) swept/s *				
1498.8	4	3.49	1.15	1
1518.1	1	0.77	1.30	0
1660.5	3	2.33	1.29	1
1718.4	4	1.10	3.63	4
1795.7	11	4.77	2.31	9
1859.3	1	0.42	2.38	1
2141.4	8	12.46	0.64	-7
2780.4	0	0.35	0	-1
3049.7	3	6.38	0.47	-5
3286.5	31	33.87	0.92	-4
4014.2	0	0.07	0	0
4487.2	0	0.70	0	-1
5645.9	1	0.30	3.30	1
Rotor plane (m^2) swept/s [t]				
1499 - –1859	24	12.87	1.86	17
2141	8	12.46	0.64	-7
2780 - –3287	34	40.60	0.84	-10
4014 - –5646	1	1.07	0.93	0
Tower type				
Vertical axis	4	2.75	1.46	2
Tubular	27	25.47	1.06	2
Lattice	36	38.78	0.93	-4
Tower height (m)				
14.0	1	1.75	0.57	-1
18.5	31	24.81	1.25	9
24.0	0	0.35	0	-1
24.6	28	29.30	0.96	-2

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
25.2	3	6.34	0.47	-5
29.5	3	2.33	1.29	1
32.3	1	0.42	2.38	1
36.9	0	0.05	0	0
43.1	0	1.66	0	-2
Tower height (m)				
14.0	1	1.75	0.57	-1
18.5	31	24.81	1.25	9
24.0 – –25.2	31	35.99	0.86	-7
29.5 – –32.3	4	2.75	1.46	2
36.9 – –43.1	0	1.71	0	-3
Rotor orientation to wind				
Faces wind	32	36.97	0.87	-7
Away from wind	31	27.29	1.14	6
Vertical axis	4	2.75	1.46	2
Blade color scheme [t]				
White	63	65.40	0.96	-4
Black stripes	0	0.28	0	0
Red stripes	0	0.06	0	0
Red tips	1	0.57	1.75	1
Green tips	3	0.70	4.28	3
Perch guard				
None	67	66.27	1.01	1
Wire netting	0	0.73	0	-1
Derelict turbines				
Operating and away from derelict	62	61.79	1.00	0
Derelict	2	2.33	0.86	0
Next to derelict	3	2.88	1.04	0
Height (m) of low blade reach *				
4.0	4	2.75	1.46	2
5.1	1	1.75	0.57	-1
8.0	0	0.70	0	-1
8.9	1	0.30	3.30	1
9.6	26	20.61	1.26	8
11.1	1	0.72	1.39	0
11.8	4	3.49	1.15	1
12.0	0	0.07	0	0
13.5	3	6.34	0.47	-5
14.4	0	0.35	0	-1
14.9	8	12.46	0.64	-7
15.7	4	9.87	0.41	-9
16.6	15	5.86	2.56	14
17.2	0	0.05	0	0
25.2	0	0.04	0	0
28.9	0	0.01	0	0
34.2	0	1.66	0	-2
Height (m) of low blade reach				

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
4.0 – –5.1	5	4.49	1.11	1
8.0 – –9.6	27	21.61	1.25	8
11.1 – –14.85	16	23.42	0.68	-11
15.7 – –17.2	19	15.78	1.20	5
25.2 – –34.2	0	1.71	0	-3
Height (m) of high blade reach *				
22.9	1	1.75	0.57	-1
25.3	4	3.49	1.15	1
25.9	1	0.72	1.39	0
27.4	26	20.61	1.26	8
29.5	3	2.33	1.29	1
32.0	0	0.05	0	0
32.3	1	0.42	2.38	1
32.6	15	5.86	2.56	14
33.5	4	9.87	0.41	-9
33.6	0	0.35	0	-1
34.4	8	12.46	0.64	-7
36.9	3	6.34	0.47	-5
37.2	0	0.07	0	0
40.3	1	0.30	3.30	1
41.2	0	0.70	0	-1
44.9	0	0.01	0	0
48.6	0	0.04	0	0
52.0	0	1.66	0	-2
Height (m) of high blade reach [t]				
22.9 – –27.4	32	26.56	1.20	8
29.5 – –33.6	23	18.86	1.22	6
34.4	8	12.46	0.64	-7
36.9 – –52.0	4	9.12	0.44	-8
Wind wall [t]				
Not in wind wall	63	57.60	1.09	8
In wind wall	4	9.40	0.43	-8
Position in string				
End	14	14.85	0.94	-1
Edge of gap	6	6.00	1.00	0
Interior	47	45.87	1.02	2
Non-operational	0	0.22	0	0
Location in wind farm				
Edge of farm	8	8.76	0.91	-1
Edge of local cluster	9	6.95	1.30	3
Interior of wind farm	50	51.09	0.98	-2
Turbine congestion (no. in 300 m)				
0 - –12	6	7.69	0.78	-3
13 - –24	26	30.31	0.86	-6
25 - –36	20	16.40	1.22	5
37 - –72	15	12.54	1.20	4
Elevation (m) *				

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
85 - –135	19	9.84	1.93	14
135 - –185	13	13.91	0.93	-1
185 - –235	8	8.87	0.90	-1
235 - –285	5	4.12	1.21	1
285 - –335	11	11.43	0.96	-1
335 - –385	6	7.60	0.79	-2
385 - –535	4	10.20	0.39	-9
Slope grade (degrees)				
0	27	26.64	1.01	1
2 - –5	5	5.29	0.95	0
6 - –14	21	16.38	1.28	7
15 - –58	14	18.64	0.75	-7
Physical relief				
Peak	0	1.15	0	-2
Plateau	9	4.65	1.94	6
Ridge crest	13	21.56	0.60	-13
Ridgeline	15	13.56	1.11	2
Slope	26	22.60	1.15	5
Saddle	4	2.97	1.35	2
Ravine	0	0.50	0	-1
Canyon				
Not in canyon	58	56.78	1.02	2
In canyon	9	10.22	0.88	-2
Slope aspect				
None (flat)	17	19.37	0.88	-4
North-facing	14	9.71	1.44	6
Northeast	3	4.35	0.69	-2
East	9	5.65	1.59	5
Southeast	6	7.61	0.79	-2
South	6	5.52	1.09	1
Southwest	1	1.17	0.86	0
West	2	2.48	0.80	-1
Northwest	9	11.03	0.82	-3
Slope aspect				
None (flat)	17	19.37	0.88	-4
East-northeast	12	9.99	1.20	3
South-southeast	12	13.13	0.91	-2
West-southwest	3	3.65	0.82	-1
North-northwest	23	20.74	1.11	3
Edge index at tower base				
No edge	4	2.56	1.56	2
Some lateral edge	7	6.40	1.09	1
Lots lateral edge	19	20.96	0.91	-3
Some vertical edge	20	21.39	0.94	-2
Lots vertical edge	13	13.76	0.94	-1
Lots vertical and lateral edge	4	1.93	2.08	3
Rockpiles ≤ 50 m away				

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
None	48	51.00	0.94	-5
1	8	5.61	1.43	4
≥ 2	5	4.39	1.14	1
Rodent control through 2001 [t]				
Unknown	2	0.81	2.47	2
None	25	15.46	1.62	14
Control	10	17.93	0.56	-12
Intense control	30	32.81	0.91	-4
Rodent control through 2002 *				
Unknown	2	0.81	2.47	2
None	17	11.41	1.49	8
Control	10	17.95	0.56	-12
Intense control	38	36.83	1.03	2
Cattle pats 40 m from turbines				
0	3	4.47	0.67	-3
1 - –9	26	22.45	1.16	8
10 - –25	15	15.03	1.00	0
> 25	3	5.06	0.59	-4
Cattle pats at turbines				
0 - –2	5	6.11	0.82	-2
3 - –9	20	15.97	1.25	9
10 - –25	16	15.38	1.04	1
> 25	6	9.55	0.63	-8
Cottontails 40 m from turbines				
No pellets	33	36.56	0.90	-8
Some pellets	10	8.27	1.21	4
Abundant pellets	4	2.17	1.84	4
Cottontails at turbines *				
No pellets	28	35.81	0.78	-17
Some pellets	12	8.19	1.46	8
Abundant pellets	7	3.00	2.33	9
Vegetation height (cm)				
0 - –10	6	8.08	0.74	-4
11 - –20	15	15.25	0.98	-1
21 - –35	19	14.30	1.33	10
> 35	7	9.37	0.75	-5
Pocket gopher clusting *				
Obs/Exp in 15 m = 0	2	1.35	1.48	3
Obs/Exp in 15 m < 1.5	6	2.24	2.68	19
Obs/Exp in 15 m = 1.5–-3.0	5	7.64	0.65	-13
Obs/Exp in 15 m > 3	7	8.77	0.80	-9
Ground squirrel clustering **				
Obs/Exp in 15 m = 0	0	7.05	0	-35
Obs/Exp in 15 m ≤ 1.14	11	7.75	1.42	16
Obs/Exp in 15 m > 1.14	9	5.20	1.73	19
Pocket gopher density ≤ 90 m *				
0 – –1.4/ha	10	5.85	1.71	24

Variable and Attribute	Observed	Expected	Obs ÷ Exp	Accountable percent
1.41 – –3.5/ha	6	5.54	1.08	3
> 3.5/ha	1	5.58	0.18	-27
Ground squirrel density ≤ 90 m[t]				
0/ha	0	3.56	0	-18
0.01 – –5.99/ha	13	11.70	1.11	6
≥ 6/ha	7	4.74	1.48	11
Clustering of all burrows *				
Obs/Exp in 15 m = 0–-1.2	7	4.15	1.69	14
Obs/Exp in 15 m = 1.2–-3.0	13	10.38	1.25	13
Obs/Exp in 15 m > 3	0	5.48	0	-27
Density of all burrow systems				
< 5/ha	8	7.70	1.04	1
5 – –9/ha	6	5.89	1.02	1
> 9/ha	6	6.41	0.94	-2
Season of the year				
Spring	14	16.53	0.85	-4
Summer	15	14.73	1.02	0
Fall	13	10.36	1.25	4
Winter	17	17.38	0.98	-1