

Steel Winds Bird Mortality Study

Final Report

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Prepared by

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for

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SUMMARY

Bird and bat mortality was surveyed from April 3 through October 16 of 2007. The survey was carried out by Buffalo Society of Natural Sciences zoologist Dr. John Grehan through the support of volunteers from the Buffalo Society of Natural Sciences, particularly people volunteering at the Society's Tiff Nature Preserve as well as members of the Audubon Society.

Four birds and 48 bats were collected from the wind towers. Three birds were collected from the meteorological tower, and four birds were collected from Fuhrmann Boulevard. Although sampling intensity was small in this pilot survey and it was not possible to carry out a predator removal survey, the presence of fly larvae on some of the birds and many of the bats may reflect a lack of predator removal. Apart from the bats which were not found along Fuhrmann Boulevard, bird mortality at the wind towers was similar to that caused by vehicles along the survey transects on Fuhrmann Boulevard. The significance of this survey for assessing bird mortality is complicated by the completion of tower construction not occurring until after the survey began in the spring, and mechanical problems precluding a closing survey in October.

INTRODUCTION

The site specific acute impacts of wind power developments on birds have been documented throughout the world, and the potential impact on bird populations raises concerns among the public about the overall environmental profile of wind power developments. Research at other wind tower sites has shown that birds may fly into rotating blades. Due concern raised among local bird advocacy groups and government regulatory bodies, Steel Winds LLC elected to voluntarily study the impact of its wind turbine generators (WTGs) on the local bird populations.

The purpose of the survey was to provide an exploratory survey of actual and potential mortality arising from eight wind towers and one meteorological tower constructed during the spring of 2007. The survey included birds and bats at the project site as well as a one mile transect along nearby Fuhrmann Boulevard to assess comparative mortality from vehicles.

Study Area

The 2007 Steel Winds Project consists of 8 wind turbines located along the Lake Erie shoreline in Lackawanna, NY. The Clipper Liberty series turbines each have a capacity of 2.5 MW and the 8 together will produce up to 20 MW of power which will be delivered to the NYS ISO grid via an existing onsite substation.



The Project is located on the former Bethlehem Steel Property in Lackawanna, New York, one of the largest brownfield sites in New York State. The wind turbines are located on land leased from Tecumseh Redevelopment Corp, a wholly owned subsidiary of Mittal Steel. The land is reclaimed from Lake Erie and consists of steel slag. There is known environmental pollution on the site, and an unknown amount of buried objects in the area of the wind turbines.

The aerial map below shows the locations of the wind towers at the Bethlehem Steel site along with the approximate position of the meteorological tower (white dot)



METHODS

The 2007 survey protocol is based on studies conducted by Western EcoSystems Technology Inc. (WEST Inc.), Toronto Exhibition Place, and the National Renewable Energy Laboratory (NREL). The survey protocol includes a bird and bat mortality study and a predator removal study. The predator removal study was intended to help determine what effect local predators have on the discovery of carcasses by BSNS personnel.

On site surveys were conducted during business hours (9AM-5PM weekdays) to allow personnel to pass through security. The exact date and time of the inspection was to be determined by BSNS so that Steel Winds would not know of the inspection until the arrival of BMOS personnel. However, in order to arrange for volunteer participation and anticipate any emerging on-site challenges to access (such as construction) it was necessary to develop a schedule for the survey period. Only one survey date had to be altered due to construction while the final survey (October 25) was cancelled due to a construction emergency. At each survey, BSNS personnel first registered with the SW project office to receive a site pass and construction hats.

Bird identifications were corroborated by David Spiering (Tift Ecologic, Buffalo Museum of Science) and Dr. Robert Andrie (Research Fellow, Buffalo Museum of Science). Surveys were carried out by the PI with assistance from volunteers from the Tift Nature Preserve, the Audubon Society, as well as various other individuals. It was originally anticipated that Bat identification would be made through DNA techniques, but this was not possible. Some bat species were identified from the specimens by David Spiering (Tift Ecologist) and Robert Andrie (Ornithologist, Eden), but no attempt was made to identify all individual bats due to the variable condition and the limited reliability of individual identifications using external features.

(1) Mortality Search

a) Windtower site: Searches were conducted within a square measuring not larger than 320 square feet centered on the turbine (i.e., within 160 feet of the turbine base). Studies at other projects show that the majority of fatalities occur within this distance). Surveys were made along transects spaced 40 feet apart with a search area 20 feet to each side. Topographical changes in the individual WTG sites make an exact square about the turbine impossible to survey and with extreme changes in grade and elevation the survey area was usually less than the full 230 square feet. BSNS and Steel Winds personnel conducted an initial joint removal of any existing carcasses on the first day of the study to avoid counting pre-existing conditions, although no specimens were found.

Carcasses were removed from the study area following documentation to ensure they are not double counted and to reduce attraction for predators or scavengers. Specimens were stored at the Buffalo Museum of Science freezer. Each specimen was recorded on the On-Site Bird Mortality form (Appendix A).

Searches were conducted approximately every 10 calendar days during the months of March, April, May, September, and October. The spring searches began on April 3 and autumn searches began on September 4. Summer searches were conducted approximately every 21 days beginning the week of June 11.

b) Fuhrmann Boulevard: Carcass searches were made along Fuhrmann Boulevard between Tiff Street and the Freezer Queen site (approximately one mile). These were conducted immediately before the on-site carcass searches. Carcasses were cataloged using the Off-Site Bird Mortality form (Appendix B). Specimens were photographed and removed for storage and identification. Each search was made between 8.00 am and 9.00 am prior to the on-site survey.

2.) Predator Removal Study

The original plan was to place a total of 30 carcasses of native species at the project site during the study period with 10 placed in spring, 10 in summer, and 10 in fall. The carcasses were to be distributed equally among the turbines, with the remaining two per season to be placed at the discretion of BSNS. Location of the study carcasses was to be recorded with respect to the turbines for future study on the Carcass Placement for in Appendix C. Each carcass would be assigned a unique serial number to aid in cataloging, and each was to be discreetly marked with electrical tape, similar to the bird coloring, around the right leg.

The exact species and number of different species to place would be left to the discretion of BSNS. The condition of each carcass was to be examined at 7, 10, and 14 day intervals. Information regarding the condition and location of the carcass will be noted on the Predator Removal form in Appendix D. On the 14th day, the carcasses would be removed from the site. Carcasses were to be placed following the week of the April 1 survey, the July 1 survey and September 30 survey.

RESULTS

(a) Mortality

As of October 12, 2007 five birds and 48 bats were collected at the wind towers. Three birds were collected from the meteorological tower, and four birds were collected from Fuhrmann Boulevard (see Table 1 below).

Birds identified from the wind towers:

- May, June: two ring billed gulls (*Larus delawarensis*)
- June: one rough winged swallow (*Stelgidopteryx serripennis*)
- June: one yellow warbler (*Dendroica petechia*)
- October: one ruby crowned kinglet (*Regulus calendula*)

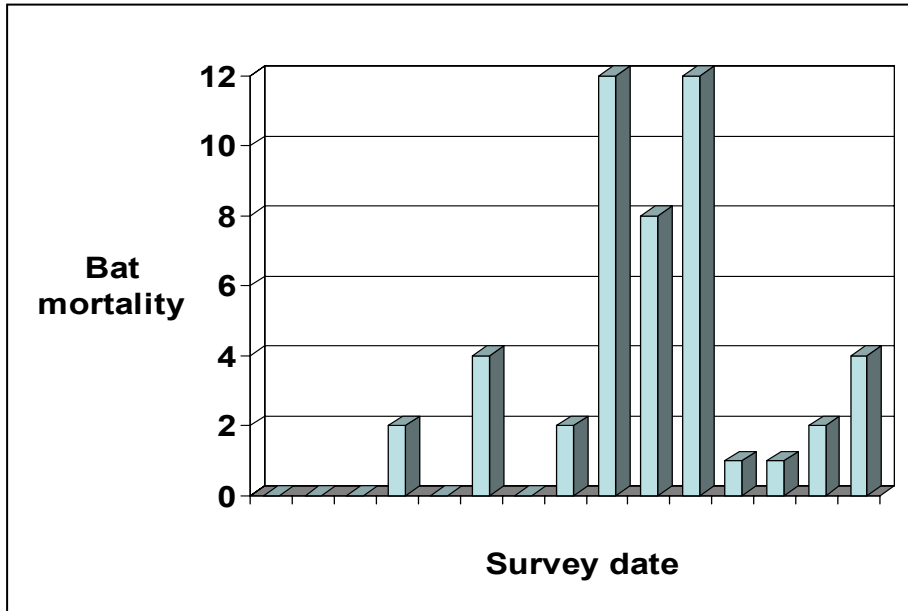
Birds identified from the meteorological tower

- June: one barn swallow (*Hirundo rustica*)
- August: one American robin (*Turdus migratorius*)
- October: one ruby crowned kinglet (*Regulus calendula*)

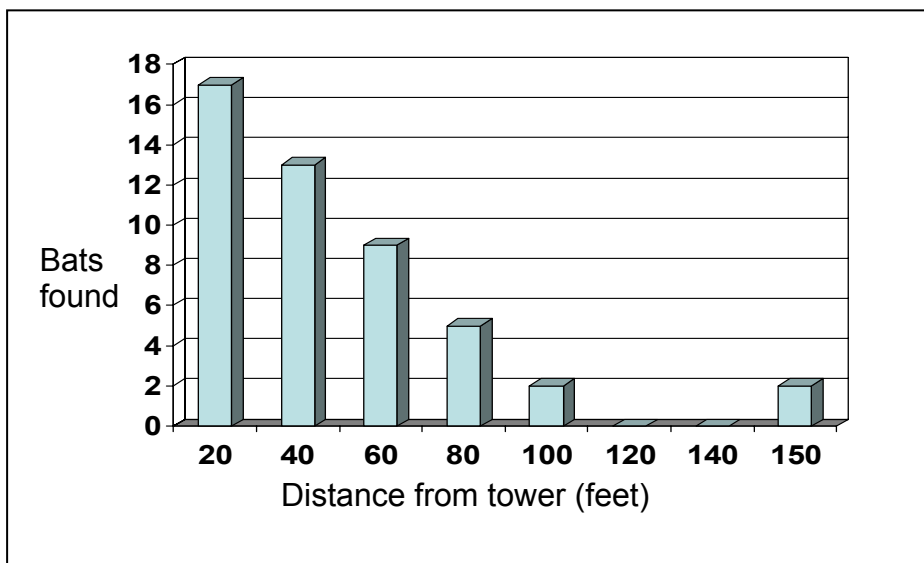
Birds identified from Fuhrmann Boulevard:

- June: one cowbird (*Molothrus ater*)
- July: one ring billed gull (*Larus delawarensis*)
- July: mourning dove (*Zenaida macroura*)
- September: turkey (*Meleagris gallopavo*)

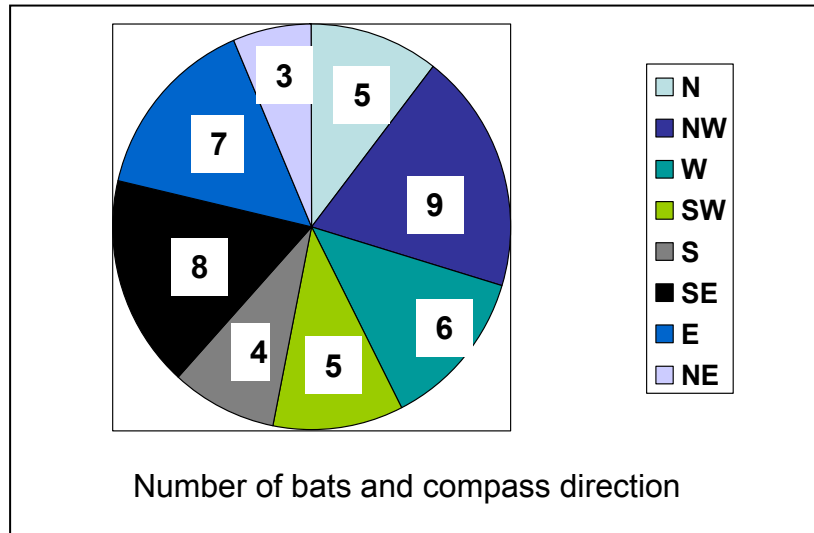
The seasonal record for bats began on May 11 and continued through to the final survey in October 16. Bats numbers were low until August 3 and remain comparatively high until the September 4 survey.



Most bats were found closer to the tower base, with over half of all bats recorded within 40 feet of a tower. No bats were recorded from the meteorological tower.



Bats were found fairly evenly distributed around the towers with respect to cardinal direction:



The following species are represented in this survey:

- big brown bat (*Eptesicus fuscus*)
- eastern red bat (*Lasiurus borealis*)
- hoary bat (*Lasiurus cinereus*)
- silver haired bat (*Lasionycteris noctivagans*).

Most of bats were small and brown, and probably represented species of *Myotis*, including the little brown bat (*Myotis lucifugus*),

(b) Predator Removal

The low number of birds collected from the towers precluded re-using native specimens for predator removal studies. An initial suggestion to DEC to use frozen chickens or other commercially available species was approved too late to obtain specimens for a predator removal study in 2007.

DISCUSSION

Predation appears to be low, although this cannot be certain in the absence of a predator removal study. Two birds were heavily infested with fly larvae, indicating that they had been exposed for several days. Several bats were also infested with fly larvae or other carrion feeding insects. A freshly killed turkey found at Fuhrmann and was placed at tower 5 where it was eaten by insects, but not removed or consumed by predators.

If predation has not been a major factor affecting the number of carcasses recovered, the current results appear to suggest that bird mortality from the wind towers is comparatively low, even under the limited number of survey samples involved. For comparison, a three decade survey of bird mortality at television towers in Erie County recorded daily mortality rates of 1-1,089 and 1-10 birds per tower respectively (Clark et al., 2005). Only two gulls were recovered, and no raptors although they were seen flying in the area during the survey. One constraint on interpretation of the spring results is that most of the towers were not fully constructed and operational until after the spring migration. The final survey in October was also not possible due to an engineering problem that developed on one of the towers.

There was no apparent correlation between bird mortality and migratory intensity as measured by NEXRAD imagery by Geo-Marine Incorporated (See Table 1). They concluded that the amount of bird migration detected by the WSR-88D (Weather Surveillance Radar-1988 Doppler) on 17 nights preceding dead bird and bat searches at the Steel Wind Energy Project revealed that on most nights there was no migration or only low density movements occurred. Only on two of the 17 nights preceding dead bird and bat searches did migration densities reach 292 birds per cubic kilometer—one in spring (21 May) and one in fall (23 September). Based on the results of the WSR-88D analysis, very few birds and bats should have been recovered during dead bird and bat searches.

In the absence of information on the local bat population it is not possible to evaluate the mortality impact found in this survey. If bats are roosting in nearby abandoned buildings this may increase the local population and, therefore, the mortality levels recorded in this survey. If the buildings are removed in the future the bat mortality may be expected to drop significantly.

RECOMMENDATIONS

1. Given the limited number of samples in the current survey, a duplicate or expanded (and perhaps statistically based) survey is desirable in the future, particularly for a full season of wind tower operation.
2. If bat mortality is of concern full species identifications should be incorporated into future studies (including a detailed examination of current specimens).
3. This survey was based on a pre-determined schedule. It may be desirable to include particularly weather conditions such as low cloud that may affect bird flights, particularly during migration.
4. It may be desirable to estimate the local bat population in order to assess the potential significance of wind tower bat mortality for the local population and also determine whether some bat species represent migrants rather than local species.
5. A predator removal survey should be conducted.

ACKNOWLEDGEMENTS

This survey was made with the kind support of many Tift Nature Preserve volunteers as well as other friends and family of those volunteers who also participated. I am also grateful to BQ Energy for making this opportunity available to the Buffalo Society of Natural Sciences.

REFERENCE

Clark, A.R., Bell, C.E., and Morris, S.R. 2005. Comparison of daily avian mortality characteristics at two television towers in western New York, 1970-1999. *Wilson Bulletin* 117, 35-43.

Table 1.

Bird and bat mortality records from wind towers, the meteorological tower, and along Fuhrmann Boulevard. A1-56 (details in Appendix A), B1-B4 (details in Appendix B).

		Wind tower site				Fuhrmann site		
	Date	Tower	taxon	Bat numbers	Bird numbers	Bird species	No.	migration
1	April 3	0	0	0	0	0	0	0
2	April 13	0	0	0	0	0	0	0
3	April 23	0	0	0	0	0	0	weak
4	May 4	0	0	0	0	0	0	high elev
	May 11	1	ring billed gull (A1)		1			weak
5	May 11	3	bat (A2, A3)	2				
6	May 22	0	0	0	0	0	0	good
7	June 1	1	bat (A4)	1				weak
	June 1	3	bat (A5, A6)	2				
	June 1	5	bate (A7)	1	0			
	June 1	8	yellow warbler male (A8)	0	1	0		
	June 1	Met	barn swallow (A9)	0	1			
	June 1	0	0	0	0	cowbird (B1)	1	
8	June 22	1	ring billed gull (A10)	0	1			0
	June 22	5	rough wing swallow (A11)	0	1			
9	July 13	4	bat (A12)	1				0
	July 13	5	bat (A13)	1				
	July 13	0	0	0		ring billed gull (B3)	1	
	July 13	0	0	0		mourning dove (B2)	1	
10	August 3	1	bat (A14)	1				0
	August 3	2	bat (A15-17)	3				
	August 3	5	bat (A18)	1				
	August 3	6	bat (A19)	1				

	August 3	7	bat (A20-23)	4			
	August 3	8	bat (A24-25)	2			
11	August 24	3	bat (A26)	1			0
	August 24	6	bat (A27)	1			
	August 24	7	bat (A28-30)	3			
	August 24	8	bat (A31-33)	3			
	August 24	Met	American robin (A34)		1		
							0
12	September 4	1	bat (A35-A7)	3			
	September 4	2	bat (A38)	1			
	September 4	5	bat (A39)	1			
	September 4	6	bat (A40)	1			
	September 4	7	bat (A41-44)	4			
	September 4	8	bat (A45-46)	2			
13	September 14	4	bat (A47)	1			some
13	September 24	8	bat (A48)	1			good
	September 24	0	0	0		Turkey (B4)	1
	October 5	7	bat (A49-50)	2			0
	October 16	2	bat (A51-52)	2			some
		4	ruby crowned kinglet (A53)		1		
		5	bat (A54)	1			
		6	bat (A55)	1			
		Met	ruby crowned kinglet (A56)		1		
	October 25						
			Totals	48	8		4

Appendix A: On-Site Bird Mortality

Location: 1
Turbine #

A1

Date: May 11

Weather

Temperature: 60 °F

Precipitation: None
Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: Josh Berkow
Initials

Primary Data

Species: ring-billed gull
4-letter code

Sex: M / F / **Unknown**

Age: Adult
Adult, immature (be as specific as possible)

Dead: **Y** or N

Estimated time since death: at least two days
In days

Description of bird (e.g. broken or missing body parts, decomposition):

Complete. Ants chewing through right wing. Body cavity filled with fly larvae. Head contorted backwards. Separation of left wing from back, allowing larvae access externally.

Disposition of bird:

Specimen had been moved from base of turbine to 100, NE by wind tower personnel.

Distance of carcass from turbine: unknown ft. Direction of carcass from turbine _____

Photograph #: _____ Marked? **Y** / **N**

Appendix A: On-Site Bird Mortality

Location: 3
Turbine #

A2

Date: May 11

Weather

Temperature: 60 °F

Precipitation: None
Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: Virginia
Initials

Primary Data

Species: bat
4-letter code

Sex: M / F / **Unknown**

Age: Adult
Adult, immature (be as specific as possible)

Dead: Y or N

Estimated time since death: Less than one day
In days

Description of bat (e.g. broken or missing body parts, decomposition):
Complete. Ambient or higher body temperature

Disposition of bird:

Specimen had been moved from base of turbine to 100, NE by wind tower personnel.

Distance of carcass from turbine: 50 ft. Direction of carcass from turbine NW

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 3
Turbine #

A3

Date: May 11

Weather

Temperature: 60 °F

Precipitation: None
Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: Deb Abgotti
Initials

Primary Data

Species: bat
4-letter code

Sex: M / F / **Unknown**

Age: Adult
Adult, immature (be as specific as possible)

Dead: Y or N

Estimated time since death: One night
In days

Description of bat (e.g. broken or missing body parts, decomposition):

Head decapitated

Disposition of bat:

Distance of carcass from turbine: 20 ft. Direction of carcass from turbine N

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 1
Turbine #

A4

Date: June 1

Weather

Temperature: 70 °F

Precipitation: None
Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: Walt
Initials

Primary Data

Species: bat
4-letter code

Sex: M / F / **Unknown**

Age: Adult
Adult, immature (be as specific as possible)

Dead: Y or N

Estimated time since death: One day
In days

Description of bat (e.g. broken or missing body parts, decomposition):
Complete

Disposition of bat:

Distance of carcass from turbine: 150 ft. Direction of carcass from turbine SW

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 3
Turbine #

A5

Date: June 1

Weather

Temperature: 70 °F

Precipitation: None
Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: Walt
Initials

Primary Data

Species: bat
4-letter code

Sex: M / F / **Unknown**

Age: Adult
Adult, immature (be as specific as possible)

Dead: Y or N

Estimated time since death: One to two days
In days

Description of bat (e.g. broken or missing body parts, decomposition):
Complete. Visited by flies, dermestid beetles

Disposition of bat:

Distance of carcass from turbine: 80 ft. Direction of carcass from turbine NW

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 3
Turbine #

A6

Date: June 1

Weather

Temperature: 70 °F

Precipitation: None
Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: Walt
Initials

Primary Data

Species: bat
4-letter code

Sex: M / F / **Unknown**

Age: Adult
Adult, immature (be as specific as possible)

Dead: Y or N

Estimated time since death: At least one day
In days

Description of bat (e.g. broken or missing body parts, decomposition):
Complete. Flat Run over by vehicle. Dry

Disposition of bat:

Distance of carcass from turbine: 60 ft. Direction of carcass from turbine NW

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 3
Turbine #

A7

Date: June 1

Weather

Temperature: 70 °F

Precipitation: None
Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: Walt
Initials

Primary Data

Species: bat
4-letter code

Sex: M / F / **Unknown**

Age: Adult
Adult, immature (be as specific as possible)

Dead: Y or N

Estimated time since death: At least one day
In days

Description of bat (e.g. broken or missing body parts, decomposition):
Complete.

Disposition of bat:

Distance of carcass from turbine: 30 ft. Direction of carcass from turbine SE

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 8
Turbine #

A8

Date: June 1

Weather

Temperature: 70 °F

Precipitation: None
Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: Fred
Initials

Primary Data

Species: yellow warbler (male)
4-letter code

Sex: M / F / **Unknown**

Age: Adult
Adult, immature (be as specific as possible)

Dead: Y or N

Estimated time since death: One day
In days

Description of bird (e.g. broken or missing body parts, decomposition):
Complete.

Disposition of bird:

Distance of carcass from turbine: 60 ft. Direction of carcass from turbine NE

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: Met tower
Turbine # _____

A9

Date: June 1

Weather

Temperature: 70 °F

Precipitation: None
Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: Fred
Initials

Primary Data

Species: yellow warbler (male)
4-letter code

Sex: M / F / **Unknown**

Age: Adult
Adult, immature (be as specific as possible)

Dead: Y or N

Estimated time since death: Less than one week
In days

Description of bird (e.g. broken or missing body parts, decomposition):
Complete, dry

Disposition of bird:

Distance of carcass from turbine: 10 ft. Direction of carcass from turbine E

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 1
Turbine #

A10

Date: June 22

Weather

Temperature: 70 °F

Precipitation: None
Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: JRG
Initials

Primary Data

Species: ring billed gull
4-letter code

Sex: M / F / **Unknown**

Age: Adult
Adult, immature (be as specific as possible)

Dead: **Y** or N

Estimated time since death: One day
In days

Description of bird (e.g. broken or missing body parts, decomposition):
Complete. Fresh. Neck damaged.

Disposition of bird:

Distance of carcass from turbine: 160 ft. Direction of carcass from turbine NE

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 5 **A11**
Turbine #

Date: June 22

Weather

Temperature: 70 °F

Precipitation: None
Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: Leanne and Fred
Initials

Primary Data

Species: rough wing swallow
4-letter code

Sex: M / F / **Unknown**

Age: Adult
Adult, immature (be as specific as possible)

Dead: Y or N

Estimated time since death: One day
In days

Description of bird (e.g. broken or missing body parts, decomposition):
Complete. Body dry

Disposition of bird:

Distance of carcass from turbine: 60 ft. Direction of carcass from turbine N

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 4 **A12**
 Turbine #

Date: July 13

Weather

Temperature: 75 °F

Precipitation: None (Thunderstorm previous night)
 Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: JRG
 Initials

Primary Data

Species: bat
 4-letter code

Sex: M / F / **Unknown**

Age: Adult
 Adult, immature (be as specific as possible)

Dead: Y or N

Estimated time since death: two days
 In days

Description of bird (e.g. broken or missing body parts, decomposition):

Flat, dry, pliable.

Disposition of bird:

Distance of carcass from turbine: 60 ft. Direction of carcass from turbine S

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 5 **A13**
 Turbine #

Date: July 13

Weather

Temperature: 75 °F

Precipitation: None (Thunderstorm previous night)
 Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: JRG
 Initials

Primary Data

Species: bat
 4-letter code

Sex: M / F / **Unknown**

Age: Adult
 Adult, immature (be as specific as possible)

Dead: Y or N

Estimated time since death: one day
 In days

Description of bat (e.g. broken or missing body parts, decomposition):
 Complete. Soft

Disposition of bat:

Distance of carcass from turbine: 15 ft. Direction of carcass from turbine N

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 1 **A14**
Turbine #

Date: August 3

Weather

Temperature: 80 °F

Precipitation: None
Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: P Sedgwick
Initials

Primary Data

Species: bat
4-letter code

Sex: M / F / **Unknown**

Age: Adult
Adult, immature (be as specific as possible)

Dead: Y or N

Estimated time since death: At least two days
In days

Description of bat (e.g. broken or missing body parts, decomposition):

Complete. Soft. At least two young fly maggots.

Disposition of bat:

Distance of carcass from turbine: 20 ft. Direction of carcass from turbine N

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 2 **A15**
 Turbine #

Date: August 3

Weather

Temperature: 80 °F

Precipitation: None
 Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: P Sedgwick
 Initials

Primary Data

Species: bat
 4-letter code

Sex: M / F / **Unknown**

Age: Adult
 Adult, immature (be as specific as possible)

Dead: Y or N

Estimated time since death: Two-three days
 In days

Description of bat (e.g. broken or missing body parts, decomposition):

Intact, but half eaten by fly larvae. One beetle present.

Disposition of bat:

Distance of carcass from turbine: 10 ft. Direction of carcass from turbine N

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 2
Turbine #

A16

Date: August 3

Weather

Temperature: 80 °F

Precipitation: None
Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: P Sedgwick
Initials

Primary Data

Species: bat
4-letter code

Sex: M / F / **Unknown**

Age: Adult
Adult, immature (be as specific as possible)

Dead: **Y** or N

Estimated time since death: one-two days
In days

Description of bat (e.g. broken or missing body parts, decomposition):
Intact. Wounded. No fly larvae.

Disposition of bat:

Distance of carcass from turbine: 50 ft. Direction of carcass from turbine S

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 2 **A17**
Turbine #

Date: August 3

Weather

Temperature: 80 °F

Precipitation: None
Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: P Sedgwick
Initials

Primary Data

Species: bat
4-letter code

Sex: M / F / **Unknown**

Age: Adult
Adult, immature (be as specific as possible)

Dead: Y or N

Estimated time since death: one night
In days

Description of bat (e.g. broken or missing body parts, decomposition):
Intact. Wounded, body fluids leaking.

Disposition of bat:

Distance of carcass from turbine: 20 ft. Direction of carcass from turbine N

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 5 **A18**
 Turbine #

Date: August 3

Weather

Temperature: 83 °F

Precipitation: None
 Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: P Sedgwick
 Initials

Primary Data

Species: bat
 4-letter code

Sex: M / F / **Unknown**

Age: Adult
 Adult, immature (be as specific as possible)

Dead: **Y** or N

Estimated time since death: two days
 In days

Description of bat (e.g. broken or missing body parts, decomposition):
 Intact. Wounded. Dry No fly larvae.

Disposition of bat:

Distance of carcass from turbine: 100 ft. Direction of carcass from turbine NW

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 6 **A19**
 Turbine #

Date: August 3

Weather

Temperature: 80 °F

Precipitation: None
 Record as N (none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: P Sedgwick
 Initials

Primary Data

Species: bat
 4-letter code

Sex: M / F / **Unknown**

Age: Adult
 Adult, immature (be as specific as possible)

Dead: **Y** or N

Estimated time since death: Three-four days
 In days

Description of bat (e.g. broken or missing body parts, decomposition):
 Intact. Eaten by fly larvae, one mature larva still present.

Disposition of bat:

Distance of carcass from turbine: 40 ft. Direction of carcass from turbine SE

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 7 **A20**
 Turbine #

Date: August 3

Weather

Temperature: 80 °F

Precipitation: None
 Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: P Sedgwick
 Initials

Primary Data

Species: bat
 4-letter code

Sex: M / F / **Unknown**

Age: Adult
 Adult, immature (be as specific as possible)

Dead: **Y** or N

Estimated time since death: three-four days
 In days

Description of bat (e.g. broken or missing body parts, decomposition):
 Intact. Wounded. Eaten by fly larvae. One pupa present.

Disposition of bat:

Distance of carcass from turbine: 60 ft. Direction of carcass from turbine SW

Photograph #: _____ Marked? **Y / N**

Appendix A: On-Site Bird Mortality

Location: 7 **A21**
 Turbine #

Date: August 3

Weather

Temperature: 80 °F

Precipitation: None
 Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: P Sedgwick
 Initials

Primary Data

Species: bat
 4-letter code

Sex: M / F / **Unknown**

Age: Adult
 Adult, immature (be as specific as possible)

Dead: **Y** or N

Estimated time since death: five days
 In days

Description of bat (e.g. broken or missing body parts, decomposition):
 Intact. Consumed by fly larvae. Very dry. Skeleton partially visible

Disposition of bat:

Distance of carcass from turbine: 38 ft. Direction of carcass from turbine SE

Photograph #: _____ Marked? **Y / N**

Appendix A: On-Site Bird Mortality

Location: 7 A22
 Turbine #

Date: August 3

Weather

Temperature: 80 °F

Precipitation: None
 Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: P Sedgwick
 Initials

Primary Data

Species: bat
 4-letter code

Sex: M / F / **Unknown**

Age: Adult
 Adult, immature (be as specific as possible)

Dead: Y or N

Estimated time since death: One day
 In days

Description of bat (e.g. broken or missing body parts, decomposition):
 Intact and moist. Covered in tiny beetles.

Disposition of bat:

Distance of carcass from turbine: 25 ft. Direction of carcass from turbine SE

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 7 **A23**
 Turbine #

Date: August 3

Weather

Temperature: 80 °F

Precipitation: None
 Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: P Sedgwick
 Initials

Primary Data

Species: bat
 4-letter code

Sex: M / F / **Unknown**

Age: Adult
 Adult, immature (be as specific as possible)

Dead: Y or N

Estimated time since death: One day
 In days

Description of bat (e.g. broken or missing body parts, decomposition):
 Intact and moist. Adult flies present.

Disposition of bat:

Distance of carcass from turbine: 28 ft. Direction of carcass from turbine NW

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 8 **A24**
 Turbine #

Date: August 3

Weather

Temperature: 80 °F

Precipitation: None
 Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: P Sedgwick
 Initials

Primary Data

Species: bat
 4-letter code

Sex: M / F / **Unknown**

Age: Adult
 Adult, immature (be as specific as possible)

Dead: Y or N

Estimated time since death: Three days
 In days

Description of bat (e.g. broken or missing body parts, decomposition):

Intact. Fly larvae present.

Disposition of bat:

Distance of carcass from turbine: 40 ft. Direction of carcass from turbine S

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 8 **A25**
Turbine #

Date: August 3

Weather

Temperature: 80 °F

Precipitation: None
Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: P Sedgwick
Initials

Primary Data

Species: bat
4-letter code

Sex: M / F / **Unknown**

Age: Adult
Adult, immature (be as specific as possible)

Dead: Y or N

Estimated time since death: Two days
In days

Description of bat (e.g. broken or missing body parts, decomposition):

Intact. Tiny fly larvae present.

Disposition of bat:

Distance of carcass from turbine: 40 ft. Direction of carcass from turbine S

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 3 **A26**
 Turbine #

Date: August 24

Weather

Temperature: 80 °F

Precipitation: None
 Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: FR
 Initials

Primary Data

Species: bat
 4-letter code

Sex: M / F / **Unknown**

Age: Adult
 Adult, immature (be as specific as possible)

Dead: Y or N

Estimated time since death: Two-three days
 In days

Description of bat (e.g. broken or missing body parts, decomposition):
 Intact. Folded up.

Disposition of bat:

Distance of carcass from turbine: 90 ft. Direction of carcass from turbine SW

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 6 A27
 Turbine #

Date: August 24

Weather

Temperature: 80 °F

Precipitation: None
 Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: JD
 Initials

Primary Data

Species: bat
 4-letter code

Sex: M / F / **Unknown**

Age: Adult
 Adult, immature (be as specific as possible)

Dead: Y or N

Estimated time since death: Three-four days
 In days

Description of bat (e.g. broken or missing body parts, decomposition):

Intact. Eaten out by flies

Disposition of bat:

Distance of carcass from turbine: 30 ft. Direction of carcass from turbine E

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 7 **A28**
Turbine #

Date: August 24

Weather

Temperature: 80 °F

Precipitation: None
Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: TD
Initials

Primary Data

Species: bat
4-letter code

Sex: M / F / **Unknown**

Age: Adult
Adult, immature (be as specific as possible)

Dead: Y or N

Estimated time since death: Five days
In days

Description of bat (e.g. broken or missing body parts, decomposition):

Intact. Entirely eaten out by flies

Disposition of bat:

Distance of carcass from turbine: 20 ft. Direction of carcass from turbine E

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 7 **A29**
Turbine #

Date: August 24

Weather

Temperature: 80 °F

Precipitation: None
Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: FR
Initials

Primary Data

Species: bat
4-letter code

Sex: M / F / **Unknown**

Age: Adult
Adult, immature (be as specific as possible)

Dead: Y or N

Estimated time since death: Two days
In days

Description of bat (e.g. broken or missing body parts, decomposition):
Intact.

Disposition of bat:

Distance of carcass from turbine: 20 ft. Direction of carcass from turbine E

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 7 **A30**
 Turbine #

Date: August 24

Weather

Temperature: 80 °F

Precipitation: None
 Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: FR
 Initials

Primary Data

Species: bat
 4-letter code

Sex: M / F / **Unknown**

Age: Adult
 Adult, immature (be as specific as possible)

Dead: Y or N

Estimated time since death: Seven days
 In days

Description of bat (e.g. broken or missing body parts, decomposition):

Consumed to partial skeleton

Disposition of bat:

Distance of carcass from turbine: 3 ft. Direction of carcass from turbine NW

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 8 **A31**
 Turbine #

Date: August 24

Weather

Temperature: 80 °F

Precipitation: None
 Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: TD
 Initials

Primary Data

Species: bat
 4-letter code

Sex: M / F / **Unknown**

Age: Adult
 Adult, immature (be as specific as possible)

Dead: Y or N

Estimated time since death: Five days
 In days

Description of bat (e.g. broken or missing body parts, decomposition):
 Flattened. Intact

Disposition of bat:

Distance of carcass from turbine: 30 ft. Direction of carcass from turbine SE

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 8 **A32**
Turbine #

Date: August 24

Weather

Temperature: 80 °F

Precipitation: None
Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: JG
Initials

Primary Data

Species: bat
4-letter code

Sex: M / F / **Unknown**

Age: Adult
Adult, immature (be as specific as possible)

Dead: Y or N

Estimated time since death: Two days
In days

Description of bat (e.g. broken or missing body parts, decomposition):
Flattened. Intact

Disposition of bat:

Distance of carcass from turbine: 20 ft. Direction of carcass from turbine E

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 8 **A33**
Turbine #

Date: August 24

Weather

Temperature: 80 °F

Precipitation: None
Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: RB
Initials

Primary Data

Species: bat
4-letter code

Sex: M / F / **Unknown**

Age: Adult
Adult, immature (be as specific as possible)

Dead: Y or N

Estimated time since death: One day
In days

Description of bat (e.g. broken or missing body parts, decomposition):

Intact, soft, bloated. Flies laying eggs.

Disposition of bat:

Distance of carcass from turbine: 25 ft. Direction of carcass from turbine N

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: Weather Station **A34**
 Turbine #

Date: August 24

Weather

Temperature: 80 °F

Precipitation: None
 Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: TD
 Initials

Primary Data

Species: robin
 4-letter code

Sex: M / F / **Unknown**

Age: Adult
 Adult, immature (be as specific as possible)

Dead: Y or N

Estimated time since death: three days
 In days

Description of bird(e.g. broken or missing body parts, decomposition):

Intact. Infested with young fly larvae, carrion beetles, and ants

Disposition of bat:

Distance of carcass from turbine: 30 ft. Direction of carcass from turbine N

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 1 **A35**
Turbine #

Date: September 4

Weather

Temperature: 80 °F

Precipitation: None
Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: FR
Initials

Primary Data

Species: bat
4-letter code

Sex: M / F / **Unknown**

Age: Adult
Adult, immature (be as specific as possible)

Dead: Y or N

Estimated time since death: three days
In days

Description of bat (e.g. broken or missing body parts, decomposition):

Intact. Completely eaten by fly larvae

Distance of carcass from turbine: 30 ft. Direction of carcass from turbine N

Appendix A: On-Site Bird Mortality

Location: 1 **A36**
 Turbine #

Date: September 4

Weather

Temperature: 80 °F

Precipitation: None
 Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: Walt
 Initials

Primary Data

Species: bat
 4-letter code

Sex: M / F / **Unknown**

Age: Adult
 Adult, immature (be as specific as possible)

Dead: **Y** or N

Estimated time since death: three days
 In days

Description of bat (e.g. broken or missing body parts, decomposition):
 Intact. Flattened by vehicle. Large dermestid beetle present.

Distance of carcass from turbine: 20 ft. Direction of carcass from turbine W

Appendix A: On-Site Bird Mortality

Location: 1 **A37**
 Turbine #

Date: September 4

Weather

Temperature: 80 °F

Precipitation: None
 Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: Ruth
 Initials

Primary Data

Species: bat
 4-letter code

Sex: M / F / **Unknown**

Age: Adult
 Adult, immature (be as specific as possible)

Dead: Y or N

Estimated time since death: Five days
 In days

Description of bat (e.g. broken or missing body parts, decomposition):
 Wings broken off, flattened by vehicle. Dermestid larva present

Distance of carcass from turbine: 20 ft. Direction of carcass from turbine NW

Appendix A: On-Site Bird Mortality

Location: 2 **A38**
Turbine #

Date: September 4

Weather

Temperature: 80 °F

Precipitation: None
Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: Fred
Initials

Primary Data

Species: bat
4-letter code

Sex: M / F / **Unknown**

Age: Adult
Adult, immature (be as specific as possible)

Dead: Y or N

Estimated time since death: three days
In days

Description of bat (e.g. broken or missing body parts, decomposition):
Intact. Eaten out by insects

Distance of carcass from turbine: 6 ft. Direction of carcass from turbine NW

Appendix A: On-Site Bird Mortality

Location: 5 **A39**
Turbine #

Date: September 4

Weather

Temperature: 80 °F

Precipitation: None
Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: Michelle Lasure
Initials

Primary Data

Species: bat
4-letter code

Sex: M / F / **Unknown**

Age: Adult
Adult, immature (be as specific as possible)

Dead: Y or N

Estimated time since death: two days
In days

Description of bat (e.g. broken or missing body parts, decomposition):
Flattened by vehicle. Soft to touch

Disposition of bat:

Distance of carcass from turbine: 50 ft. Direction of carcass from turbine E

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 6 **A40**
 Turbine #

Date: September 4

Weather

Temperature: 80 °F

Precipitation: None
 Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: JRG
 Initials

Primary Data

Species: bat
 4-letter code

Sex: M / F / **Unknown**

Age: Adult
 Adult, immature (be as specific as possible)

Dead: **Y** or N

Estimated time since death: three days
 In days

Description of bat (e.g. broken or missing body parts, decomposition):
 Complete. Flattened. Partially eaten by insects

Disposition of bat:

Distance of carcass from turbine: 10 ft. Direction of carcass from turbine N

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 7 **A41**
Turbine #

Date: September 4

Weather

Temperature: 80 °F

Precipitation: None
Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: Ruth
Initials

Primary Data

Species: bat
4-letter code

Sex: M / F / **Unknown**

Age: Adult
Adult, immature (be as specific as possible)

Dead: Y or N

Estimated time since death: one day
In days

Description of bat (e.g. broken or missing body parts, decomposition):

Intact. Moist. Bloody injury to right wing.

Distance of carcass from turbine: 60 ft. Direction of carcass from turbine E

Appendix A: On-Site Bird Mortality

Location: 7 **A42**
 Turbine #

Date: September 4

Weather

Temperature: 80 °F

Precipitation: None
 Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: Michelle
 Initials

Primary Data

Species: bat
 4-letter code

Sex: M / F / **Unknown**

Age: Adult
 Adult, immature (be as specific as possible)

Dead: **Y** or N

Estimated time since death: three days
 In days

Description of bat (e.g. broken or missing body parts, decomposition):
 Intact. Eaten by insects. Dry

Disposition of bat:

Distance of carcass from turbine: 40 ft. Direction of carcass from turbine SE

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 7 **A43**
 Turbine #

Date: September 4

Weather

Temperature: 80 °F

Precipitation: None
 Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: TD
 Initials

Primary Data

Species: bat
 4-letter code

Sex: M / F / **Unknown**

Age: Adult
 Adult, immature (be as specific as possible)

Dead: Y or N

Estimated time since death: One day
 In days

Description of bat (e.g. broken or missing body parts, decomposition):

Flattened by vehicle. Soft. Wings missing.

Disposition of bat:

Distance of carcass from turbine: 50 ft. Direction of carcass from turbine SE

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 7 **A44**
Turbine #

Date: September 4

Weather

Temperature: 80 °F

Precipitation: None
Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: Walt
Initials

Primary Data

Species: bat
4-letter code

Sex: M / F / **Unknown**

Age: Adult
Adult, immature (be as specific as possible)

Dead: Y or N

Estimated time since death: Three days
In days

Description of bat (e.g. broken or missing body parts, decomposition):
Eaten out by insects

Disposition of bat:

Distance of carcass from turbine: 30 ft. Direction of carcass from turbine W

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 8 **A45**
 Turbine #

Date: September 4

Weather

Temperature: 80 °F

Precipitation: None
 Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: Walt
 Initials

Primary Data

Species: bat
 4-letter code

Sex: M / F / **Unknown**

Age: Adult
 Adult, immature (be as specific as possible)

Dead: Y or N

Estimated time since death: Three days
 In days

Description of bat (e.g. broken or missing body parts, decomposition):

Intact. Curled up. Not dry

Disposition of bat:

Distance of carcass from turbine: 25 ft. Direction of carcass from turbine W

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 8 **A46**
 Turbine #

Date: September 4

Weather

Temperature: 80 °F

Precipitation: None
 Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: Michelle
 Initials

Primary Data

Species: bat
 4-letter code

Sex: M / F / **Unknown**

Age: Adult
 Adult, immature (be as specific as possible)

Dead: Y or N

Estimated time since death: Five days
 In days

Description of bat (e.g. broken or missing body parts, decomposition):
 Almost skeletonized by insects

Distance of carcass from turbine: 20 ft. Direction of carcass from turbine SW

Appendix A: On-Site Bird Mortality

Location: 4 **A47**
 Turbine #

Date: September 14

Weather

Temperature: 68 °F

Precipitation: None
 Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: TD
 Initials

Primary Data

Species: bat
 4-letter code

Sex: M / F / **Unknown**

Age: Adult
 Adult, immature (be as specific as possible)

Dead: **Y** or N

Estimated time since death: One day
 In days

Description of bat (e.g. broken or missing body parts, decomposition):
 Covered in ants

Disposition of bat:

Distance of carcass from turbine: 80 ft. Direction of carcass from turbine SE

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 8 **A48**
 Turbine #

Date: September 24

Weather

Temperature: 70 °F

Precipitation: None
 Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: TD
 Initials

Primary Data

Species: bat
 4-letter code

Sex: M / F / **Unknown**

Age: Adult
 Adult, immature (be as specific as possible)

Dead: **Y** or N

Estimated time since death: One day
 In days

Description of bat (e.g. broken or missing body parts, decomposition):
 Intact. Fresh wound. Flies visiting

Disposition of bat:

Distance of carcass from turbine: 88 ft. Direction of carcass from turbine ENE

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 7 **A49**
 Turbine #

Date: October 5

Weather

Temperature: 80 °F

Precipitation: None
 Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: JRG
 Initials

Primary Data

Species: bat
 4-letter code

Sex: M / F / **Unknown**

Age: Adult
 Adult, immature (be as specific as possible)

Dead: **Y** or N

Estimated time since death: three days
 In days

Description of bat (e.g. broken or missing body parts, decomposition):
 Embedded in stones. Skeletal.

Disposition of bat:

Distance of carcass from turbine: 80 ft. Direction of carcass from turbine E

Photograph #: _____ Marked? Y / N

Appendix A: On-Site Bird Mortality

Location: 7 **A50**
 Turbine #

Date: October 5

Weather

Temperature: 80 °F

Precipitation: None
 Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: JRG
 Initials

Primary Data

Species: bat
 4-letter code

Sex: M / F / **Unknown**

Age: Adult
 Adult, immature (be as specific as possible)

Dead: **Y** or N

Estimated time since death: one days
 In days

Description of bat (e.g. broken or missing body parts, decomposition):
 Intact. Soft

Disposition of bat:

Distance of carcass from turbine: 1 ft. Direction of carcass from turbine W

Photograph #: _____ Marked? **Y / N**

Appendix A: On-Site Bird Mortality

Location: 2 **A51**
 Turbine #

Date: October 16

Weather

Temperature: 50 °F

Precipitation: None
 Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: Ruth Lasure
 Initials

Primary Data

Species: bat
 4-letter code

Sex: M / F / **Unknown**

Age: Adult
 Adult, immature (be as specific as possible)

Dead: **Y** or N

Estimated time since death: one days
 In days

Description of bat (e.g. broken or missing body parts, decomposition):
 Damaged. Entrails exposed. No insects

Disposition of bat:

Distance of carcass from turbine: 1 ft. Direction of carcass from turbine W

Photograph #: _____ Marked? **Y / N**

Appendix A: On-Site Bird Mortality

Location: 2 **A52**
 Turbine #

Date: October 16

Weather

Temperature: 50 °F

Precipitation: None
 Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: B Long
 Initials

Primary Data

Species: bat
 4-letter code

Sex: M / F / **Unknown**

Age: Adult
 Adult, immature (be as specific as possible)

Dead: **Y** or N

Estimated time since death: two days
 In days

Description of bat (e.g. broken or missing body parts, decomposition):
 Body damp. Wounded. Young fly larvae present.

Disposition of bat:

Distance of carcass from turbine: 170 ft. Direction of carcass from turbine NNW

Photograph #: _____ Marked? **Y / N**

Appendix A: On-Site Bird Mortality

Location: 4 **A53**
 Turbine #

Date: October 16

Weather

Temperature: 50 °F

Precipitation: None
 Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: F Robgent
 Initials

Primary Data

Species: bird
 4-letter code

Sex: **M** / F / Unknown

Age: Adult
 Adult, immature (be as specific as possible)

Dead: **Y** or N

Estimated time since death: two days
 In days

Description of bird (e.g. broken or missing body parts, decomposition):

Ruby crowned kinglet

Soft. Flattened

No larvae

Disposition of bat:

Distance of carcass from turbine: 150 ft. Direction of carcass from turbine S

Photograph #: _____ Marked? **Y** / **N**

Appendix A: On-Site Bird Mortality

Location: 5 **A54**
 Turbine #

Date: October 16

Weather

Temperature: 50 °F

Precipitation: None
 Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: Nancy Salminen
 Initials

Primary Data

Species: bat
 4-letter code

Sex: **M** / F / Unknown

Age: Adult
 Adult, immature (be as specific as possible)

Dead: **Y** or N

Estimated time since death: two days
 In days

Description of bat (e.g. broken or missing body parts, decomposition):
 Complete, soft. First instar fly larvae, ants

Disposition of bat:

Distance of carcass from turbine: 48 ft. Direction of carcass from turbine SW

Photograph #: _____ Marked? **Y** / **N**

Appendix A: On-Site Bird Mortality

Location: 4 **A55**
 Turbine #

Date: October 16

Weather

Temperature: 50 °F

Precipitation: None
 Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: FR
 Initials

Primary Data

Species: bat
 4-letter code

Sex: **M** / F / Unknown

Age: Adult
 Adult, immature (be as specific as possible)

Dead: **Y** or N

Estimated time since death: three days
 In days

Description of bat (e.g. broken or missing body parts, decomposition):
 Skeletal. Eaten out by insects.

Disposition of bat:

Distance of carcass from turbine: 4 ft. Direction of carcass from turbine S

Photograph #: _____ Marked? **Y** / **N**

Appendix A: On-Site Bird Mortality

Location: Weather station
Turbine # _____

A56

Date: October 16

Weather

Temperature: 50 °F

Precipitation: None

Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: FR
Initials

Primary Data

Species: bird Ruby crowned kinglet
4-letter code

Sex: **M** / F / Unknown

Age: Adult
Adult, immature (be as specific as possible)

Dead: **Y** or N

Estimated time since death: tone
In days

Description of bat (e.g. broken or missing body parts, decomposition):
Flattened. Intact, wounded. Soft

Disposition of bat:

Distance of carcass from turbine: 300 ft. Direction of carcass from turbine E

Photograph #: _____ Marked? **Y** / **N**

Appendix B: Off-Site Bird Mortality

Location: Furhman Boulevard west side

B1

Nearest Geographical Marker: Tiff Nature Preserve sign

Distance: 60 ft

Direction: N

Date: June 1

Weather

Temperature: 70 °F

Precipitation: N

Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: JRG
Initials

Primary Data

Species: cowbird
4-letter code

Sex: M / F / **Unknown**

Age: Adult
Adult, immature (be as specific as possible)

Dead: **Y** or N

Estimated time since death: One
In days

Description of bird (e.g. broken or missing body parts, decomposition):

Wing and wing base.

Photograph #: _____

Appendix B: Off-Site Bird Mortality

Location: Furhman Boulevard east side eastern edge

B2

Nearest Geographical Marker: Underpass north of Tifft

Distance: 200 ft

Direction: S

Date: July 13

Weather

Temperature: 75 °F

Precipitation: N

Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: JRG
Initials

Primary Data

Species: mourning dove
4-letter code

Sex: M / F / **Unknown**

Age: Adult
Adult, immature (be as specific as possible)

Dead: **Y** or N

Estimated time since death: seven
In days

Description of bird (e.g. broken or missing body parts, decomposition):

Entire. Eaten by flies. No larvae

Photograph #: _____

Appendix B: Off-Site Bird Mortality

Location: Furhman Boulevard east side, western edge

B3

Nearest Geographical Marker: Underpass north of Tifft

Distance: 200 ft

Direction: S

Date: July 13

Weather

Temperature: 75 °F

Precipitation: N

Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: JRG
Initials

Primary Data

Species: ring billed gull
4-letter code

Sex: M / F / **Unknown**

Age: Adult
Adult, immature (be as specific as possible)

Dead: **Y** or N

Estimated time since death: seven
In days

Description of bird (e.g. broken or missing body parts, decomposition):

Flat, dry, no flies

Photograph #: _____

Appendix B: Off-Site Bird Mortality

Location: Furhman Boulevard east side, western edge

B4

Nearest Geographical Marker: Tiff Nature Preserve sign

Distance: 100 ft

Direction: N

Date: September 24

Weather

Temperature: _____°F

Precipitation: N

Record as N(none), L(light), M(moderate), H(heavy), F(fog)

Snow Cover: 0 % ground covered

Observer: JRG
Initials

Primary Data

Species: turkey
4-letter code

Sex: M / F / **Unknown**

Age: Adult?
Adult, immature (be as specific as possible)

Dead: **Y** or N

Estimated time since death: one
In days

Description of bird (e.g. broken or missing body parts, decomposition):

Fresh, soft, no obvious damage

Photograph #: _____

