

Primary Reference or New Data Review Sheet (cont'd)

VI. Carcass Search Methods (if applicable)
Search Conditions: Daily <input checked="" type="checkbox"/> Weekly ____ Only after overcast nights with a low ceiling or storm events ____
Other Periods (Describe):
Search Biases Evaluated, Including Observer Bias and Scavenger Activity? Yes <input checked="" type="checkbox"/> No ____
Search Area Described? Yes ____ No <input checked="" type="checkbox"/>
Except for <12 mornings in June, practically 0 dead birds found during that period. Proactive scavengers removal program. See Crawford and Engstrom, 2001 for details.
VII. Analytical and Statistical Methods
Statistical method(s) used: (list)
N/A
Comments:
VIII. Number of Tower Sites: 1 Proximity:
See Crawford and Engstrom, 2001 for details. 673 feet then rebuilt Apr 15, 1960 to 1,008 feet. Steady/flashing red lights; guyed.
IX. Behavioral Observations at the Tower: Yes <input checked="" type="checkbox"/> No ____ Describe if applicable to statement or conclusion being evaluated.
Other papers detail, but not this paper.
X. Documentation of Weather Factors? Yes <input checked="" type="checkbox"/> No ____ Describe if applicable to statement or conclusion being evaluated.
General factors only.

Primary Reference or New Data Review Sheet (cont'd)

<p>XI. Inclusion of Structural and Landscape Conditions? Yes ____ No <input checked="" type="checkbox"/></p> <p>Describe if applicable to statement or conclusion being evaluated.</p>														
<p>XII. Brief Description of Results</p> <p>*Early rain in p.m. grounds vireos, warblers, and thrushes (but not finches). With early rain in the early p.m., more finch mortalities reported; dry in early p.m. results in greater number of vireo, warbler, and thrush mortalities (which typically comprise > 75% of total mortalities).</p> <p>*Winds reported to contribute to collisions, even on clear nights. Reported large number of migratory birds on clear nights at higher altitudes and 0 mortalities at the tower.</p> <p>*Diagrams of carcass locations relative to tower, guy wires, and wind direction.</p> <p>*Detailed predator scavenger information.</p> <p><u>Mass Mortalities:</u></p> <table border="0"> <tr> <td>4 Apr 1956 (190)</td> <td>27 Sep 1957 (111)</td> </tr> <tr> <td>5 Apr 1956 (135)</td> <td>30 Sep 1957 (146)</td> </tr> <tr> <td>26 Apr 1956 (201)</td> <td>1 Oct 1957 (222)</td> </tr> <tr> <td>2 Apr 1957 (130)</td> <td>2 Oct 1957 (126)</td> </tr> <tr> <td>4 Apr 1958 (228)</td> <td>5 Oct 1957 (2,325) (63 species)</td> </tr> <tr> <td>6 Apr 1959 (102)</td> <td>9 Oct 1955 (4,000-7,000)</td> </tr> <tr> <td>9 Apr 1958 (220)</td> <td></td> </tr> </table> <p>*Author interested as much in the total absence of dead birds of any morning as the presence of large numbers; i.e., negative evidence can be as important, on occasion, as positive.</p> <p>*Reported large numbers of exhausted and sleeping birds on ground w/in 50-100 yards of tower. No birds seen larger than tanager-sized, except for mortally wounded ones. Author believed this phenomenon was related to clouds engulfing tower lights.</p>	4 Apr 1956 (190)	27 Sep 1957 (111)	5 Apr 1956 (135)	30 Sep 1957 (146)	26 Apr 1956 (201)	1 Oct 1957 (222)	2 Apr 1957 (130)	2 Oct 1957 (126)	4 Apr 1958 (228)	5 Oct 1957 (2,325) (63 species)	6 Apr 1959 (102)	9 Oct 1955 (4,000-7,000)	9 Apr 1958 (220)	
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<p>XIII. Need for and Scope of Additional Studies (Only applicable if new data or study is provided.)</p> <p>Are additional studies identified? Yes ____ No <input checked="" type="checkbox"/> If yes explain and list studies.</p>														
<p>XIV. Suggested Methods to Minimize Impacts (Only applicable if new data or study is provided.)</p> <p>Are specific methods identified? Yes ____ No <input checked="" type="checkbox"/> If yes explain and list specific mitigative methods.</p>														

Primary Reference or New Data Review Sheet

I. Citation or Source:	
Shire, G.G., K. Brown, and G. Winegrad. 2000. Communication towers: A deadly hazard to birds. American Bird Conservancy Special Report. 23 pp.	
Source Type (check one): Summary	
Peer-reviewed Paper <input type="checkbox"/> Other (specify): <i>Summary Report</i>	
Agency Report <input type="checkbox"/>	
Conference Proceedings <input type="checkbox"/>	
II. Study Objectives (list)	
N/A	
Do study objectives relate to scientific statement of conclusion being evaluated? Yes <input type="checkbox"/> No <input type="checkbox"/> Explain	
N/A	
III. Species Studied (list)	
N/A	
IV. Study Methods (briefly list)	
N/A	
V. Duration of Study N/A	
Duration (provide dates): Single Year _____ Multiple Years _____	Seasons: Spring Migration <input type="checkbox"/> Both <input type="checkbox"/> Fall Migration <input type="checkbox"/> Yearlong <input type="checkbox"/>

Primary Reference or New Data Review Sheet (cont'd)

VI. Carcass Search Methods (if applicable) N/A
Search Conditions: Daily ___ Weekly ___ Only after overcast nights with a low ceiling or storm events ___
Other Periods (Describe):
Search Biases Evaluated, Including Observer Bias and Scavenger Activity? Yes ___ No ___
Search Area Described? Yes ___ No ___
N/A
VII. Analytical and Statistical Methods N/A
Statistical method(s) used: (list)
Comments:
VIII. Number of Tower Sites: N/A Proximity:
IX. Behavioral Observations at the Tower: Yes ___ No ___ Describe if applicable to statement or conclusion being evaluated.
N/A
X. Documentation of Weather Factors? Yes ___ No ___ Describe if applicable to statement or conclusion being evaluated.
N/A

Primary Reference or New Data Review Sheet (cont'd)

<p>XI. Inclusion of Structural and Landscape Conditions? Yes ____ No ____ Describe if applicable to statement or conclusion being evaluated.</p>
<p>N/A</p>
<p>XII. Brief Description of Results</p>
<p>Point that of 230 species killed @ towers, 52 are in decline or need special management attention. One Federally endangered species has been found, the red-cockaded woodpecker. Other species are on the extremely high priority PIF watch list or FWS "Species of Mgmt Concern" list.</p>
<p>XIII. Need for and Scope of Additional Studies (Only applicable if new data or study is provided.)</p>
<p>Are additional studies identified? Yes <input checked="" type="checkbox"/> No ____ If yes explain and list studies.</p>
<p>Need further studies to better define:</p> <ol style="list-style-type: none"> 1) Why warblers and sparrows most affected. 2) Applicable research mitigation measures. 3) The exact cause of bird mortalities. 4) Lighting differences.
<p>XIV. Suggested Methods to Minimize Impacts (Only applicable if new data or study is provided.)</p>
<p>Are specific methods identified? Yes <input checked="" type="checkbox"/> No ____ If yes explain and list specific mitigative methods.</p>
<p>Not studied yet, but shows promise:</p> <ol style="list-style-type: none"> 1) Changes in lighting protocol. 2) Infra-red use. 3) Bird diverters. 4) Visual markers/audible devices. 5) See list Page 19 of report.

Primary Reference or New Data Review Sheet

I. Citation or Source:	
Seets, J.W. and H.D. Bohlen. 1977. Comparative mortality of birds at television towers in central Illinois. Wilson Bulletin 89(3):422-433.	
Source Type (check one): Study	
Peer-reviewed Paper <input checked="" type="checkbox"/>	Other (specify):
Agency Report _____	
Conference Proceedings _____	
II. Study Objectives (list)	
<ul style="list-style-type: none"> 1) Obtain research specimens for preservation. 2) Obtain comparative data on migration patterns across the state. 	
III. Species	
See Page 3; 5,138 total birds.	
IV. Study Methods (briefly list)	
Checked towers on all mornings followed nights w/ reduced visibility from fog, precipitation, or low cloud ceilings.	
V. Duration of Study 1 year	
Duration (provide dates): Single Year <u>1972</u> Multiple Years _____ 13 dates b/w 2 Sep and 12 Nov 1972, following cloudy weather.	Seasons: Spring Migration _____ Both _____ Fall Migration <input checked="" type="checkbox"/> Yearlong _____

Primary Reference or New Data Review Sheet (cont'd)

VI. Carcass Search Methods (If applicable)
Search Conditions: Daily <input type="checkbox"/> Weekly <input type="checkbox"/> Only after overcast nights with a low ceiling or storm events <input checked="" type="checkbox"/>
Other Periods (Describe): 13 visits following overcast conditions.
Search Biases Evaluated, Including Observer Bias and Scavenger Activity? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Search Area Described? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Scavengers noted, but no calculations or scavenger removal rates developed.
VII. Analytical and Statistical Methods
Statistical method(s) used: (list)
Chi-square indicated species composition differed significantly b/w eastern and western Illinois.
Comments:
VIII. Number of Tower Sites: 7 Proximity: Across state of Illinois.
7 towers all guyed: 1,587 1,458 1,063 1,047 981 1,338 605 Lighting not reported.
IX. Behavioral Observations at the Tower: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Describe if applicable to statement or conclusion being evaluated.
X. Documentation of Weather Factors? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Describe if applicable to statement or conclusion being evaluated.
Surveys completed mornings following precipitation or low visibility. Obtained weather station data. All but 4 of kills occurred w/ low ceiling and visibility. 4 nights when 93% of kills occurred ceiling was 550 meters or less. Often cold fronts w/ northerly winds. All kills occurred w/in 32 hours of weather events (usually w/in 6 hours).

Primary Reference or New Data Review Sheet (cont'd)

XI. Inclusion of Structural and Landscape Conditions? Yes ___ No <input checked="" type="checkbox"/> <p>Describe if applicable to statement or conclusion being evaluated.</p>																																
XII. Brief Description of Results <p>No consistent relationship b/w tower height, terrain, or location and the number of bird kills. Kills neither consistently high or low @ tower sites. Authors believe number of kills directly related to weather and number birds flying (i.e., present).</p> <p>Timing may be important because the time that birds are killed may have bearing on the species affected.</p> <p>When comparing radar data from 1968 for different locations, a number of migrants are consistently uniform. Assumed if weather conditions were the same then number of kills should be similar b/w towers, but some were very different. Cannot explain without more detailed weather data.</p> <table style="margin-left: 40px; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"></th> <th style="text-align: left;">Kills</th> <th style="text-align: left;">Species</th> <th style="text-align: left;">Mass Mortalities:</th> </tr> </thead> <tbody> <tr> <td>(1)</td> <td>328</td> <td>43</td> <td>2 Sep 1972 (221); 29 Sep 1972 (107)</td> </tr> <tr> <td>(2)</td> <td>1,680</td> <td>61</td> <td>2 Sep 1972 (735); 27 Sep 1972 (391); 29 Sep 1972 (319)</td> </tr> <tr> <td>(3)</td> <td>969</td> <td>55</td> <td>2 Sep 1972 (110); 27 Sep 1972 (807)</td> </tr> <tr> <td>(4)</td> <td>1,176</td> <td>57</td> <td>27 Sep 1972 (992); 31 Oct 1972 (184)</td> </tr> <tr> <td>(5)</td> <td>130</td> <td>22</td> <td>27 Sep 1972 (127)</td> </tr> <tr> <td>(6)</td> <td>942</td> <td>63</td> <td>2 Sep 1972 (266); 27 Sep 1972 (634)</td> </tr> <tr> <td>(7)</td> <td>206</td> <td>27</td> <td>27 Sep 1972 (206)</td> </tr> </tbody> </table> <p>* 59.8% total killed 27 Sep 1972</p>		Kills	Species	Mass Mortalities:	(1)	328	43	2 Sep 1972 (221); 29 Sep 1972 (107)	(2)	1,680	61	2 Sep 1972 (735); 27 Sep 1972 (391); 29 Sep 1972 (319)	(3)	969	55	2 Sep 1972 (110); 27 Sep 1972 (807)	(4)	1,176	57	27 Sep 1972 (992); 31 Oct 1972 (184)	(5)	130	22	27 Sep 1972 (127)	(6)	942	63	2 Sep 1972 (266); 27 Sep 1972 (634)	(7)	206	27	27 Sep 1972 (206)
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XIII. Need for and Scope of Additional Studies (Only applicable if new data or study is provided.)																																
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Primary Reference or New Data Review Sheet

I. Citation or Source:	
Podolsky, R, D.G. Ainley, G. Spencer, L. DeForest, and N. Nur. 1998. Mortality of Newell's Shearwaters caused by collisions with urban structures on Kauai. <i>Colonial Waterbirds</i> 21(1):20-34.	
Source Type (check one): Study.	
Peer-reviewed Paper <input checked="" type="checkbox"/> Other (specify): Agency Report _____ Conference Proceedings _____	
II. Study Objectives (list)	
To document mortality rates of Newell's shearwaters from collisions w/ urban structures, primarily overhead power lines.	
III. Species Studied (list)	
Newell's shearwaters.	
IV. Study Methods	
Ran transects for shearwater collision crippling or mortalities w/ power lines. Recorded: 1) location, 2) nearby wires and lights, 3) general background light intensity, 4) traffic, and 5) behavior or mortality. 1993 = 1,043 km of power lines and roads surveyed. 1994 = 732 km and 648 km	
V. Duration of Study fall fledging period	
Duration (provide dates): Single Year _____ Multiple Years <u>1993 and 1994</u> June - July 1993 = 4-6 days/week when commuting 4-27 Oct 1993 5-7 Oct 1994 27 Oct-12 Nov 1994	Seasons: Spring Migration _____ Both _____ Fall Migration <input checked="" type="checkbox"/> Yearlong _____

Primary Reference or New Data Review Sheet (cont'd)

<p>VI. Carcass Search Methods (if applicable) Driving and pedestrian surveys.</p>
<p>Search Conditions: Daily <input type="checkbox"/> Weekly <input type="checkbox"/> Only after overcast nights with a low ceiling or storm events <input type="checkbox"/></p>
<p>Other Periods (Describe): See methods.</p>
<p>Search Biases Evaluated, Including Observer Bias and Scavenger Activity? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p>Search Area Described? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>
<p>Scavenger removal study: 1994 = 23 carcasses, monitored daily; Possibly underestimated shearwater mortality rates by 17% due to scavenger removal.</p>
<p>VII. Analytical and Statistical Methods</p>
<p>Statistical method(s) used: (list)</p>
<p>Mann-Whitney U-Tests. Single-variable logistic regression analysis.</p>
<p>Comments:</p>
<p>VIII. Number of Tower Sites: N/A Proximity:</p>
<p>IX. Behavioral Observations at the Tower: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Describe if applicable to statement or conclusion being evaluated.</p>
<p>X. Documentation of Weather Factors? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Describe if applicable to statement or conclusion being evaluated.</p>
<p> </p>

Primary Reference or New Data Review Sheet (cont'd)

<p>XI. Inclusion of Structural and Landscape Conditions? Yes ___ No <input checked="" type="checkbox"/></p> <p>Describe if applicable to statement or conclusion being evaluated.</p>
<p>XII. Brief Description of Results</p> <p>References possible attraction of birds to lights and overall issues associated with rare and sensitive species. Discusses potential repercussions if threatened and endangered species are affected by collisions, which could apply to communication towers.</p>
<p>XIII. Need for and Scope of Additional Studies (Only applicable if new data or study is provided.)</p> <p>Are additional studies identified? Yes ___ No <input checked="" type="checkbox"/> If yes explain and list studies.</p>
<p>XIV. Suggested Methods to Minimize Impacts (Only applicable if new data or study is provided.)</p> <p>Are specific methods identified? Yes ___ No <input checked="" type="checkbox"/> If yes explain and list specific mitigative methods.</p>

Primary Reference or New Data Review Sheet

I. Citation or Source:	
Nehring, J. and S. Bivens. 1999. A study of bird mortality at Nashville's WSMV television tower. <i>Migrant</i> 70:1-8.	
Source Type (check one): Study Peer-reviewed Paper <input checked="" type="checkbox"/> Other (specify): Agency Report <input type="checkbox"/> Conference Proceedings <input type="checkbox"/>	
II. Study Objectives (list)	
Determine extent of bird mort during fall. Document long-term trends.	
III. Species	
19,880 total birds; 112 species; >90% neotropical migrants. Two large kills: 5,399 birds on 26 Sep 1968 3,487 birds on 28 Sep 1970 Of 19,880 birds, only 128 birds (0.64%) <u>not</u> neotropical migrants. Parulidae and Vireonidae most prominent groups recorded.	
IV. Study Methods (briefly list)	
Daily surveys 1 Sep – 31 Oct for 38 years.	
V. Duration of Study 38 years	
Duration (provide dates): Single Year _____ Multiple Years <u>1960-1997</u> Focused on fall migration b/c several years of spring searches were "unproductive."	Seasons: Spring Migration _____ Both _____ Fall Migration <input checked="" type="checkbox"/> Yearlong _____

Primary Reference or New Data Review Sheet (cont'd)

VI. Carcass Search Methods (if applicable)
Search Conditions: Daily <input checked="" type="checkbox"/> Weekly <input type="checkbox"/> Only after overcast nights with a low ceiling or storm events <input type="checkbox"/>
Other Periods (Describe): 1 Sep - 31 Oct for 38 years.
Search Biases Evaluated, Including Observer Bias and Scavenger Activity? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Search Area Described? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Scavengers noted, but no calculations or scavenger removal rates developed.
VII. Analytical and Statistical Methods
Statistical method(s) used: (list) N/A
N/A; descriptive only.
Comments:
VIII. Number of Tower Sites: 1 Proximity:
WSMV - 1,364 feet. Red steady and flashing lights; guyed. 3 mi SW Nashville, TN.
IX. Behavioral Observations at the Tower: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Describe if applicable to statement or conclusion being evaluated.
X. Documentation of Weather Factors? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Describe if applicable to statement or conclusion being evaluated.

Primary Reference or New Data Review Sheet (cont'd)

<p>XI. Inclusion of Structural and Landscape Conditions? Yes ___ No <input checked="" type="checkbox"/></p> <p>Describe if applicable to statement or conclusion being evaluated.</p>
<p>XII. Brief Description of Results</p> <p>Results published through the years by Laskey and Goodpasture. Mortality rates declined over time. Even deducting two mass kills in 1968 and 1970, the trend over time shows reduction in bird mortalities. Different families' or species' approach to migration (flying altitudes, routes, social behavior) may put certain species @ greater risk.</p> <p>Authors speculate three possible causal factors for declining mortality numbers <i>although communication towers are increasing</i>:</p> <ol style="list-style-type: none"> 1) An increase in carcass removal by scavengers. 2) An increase in background lights. 3) A change in migration routes due to an expansion of the Nashville urban area. <p>Authors state: "These structures specifically sample migrating birds because they do not represent a hazard to resident species". In other words, they state that few resident species are found and the majority of the birds killed are migrants.</p>
<p>XIII. Need for and Scope of Additional Studies (Only applicable if new data or study is provided.)</p> <p>Are additional studies identified? Yes <input checked="" type="checkbox"/> No ___ If yes explain and list studies.</p> <p>Need consistent and standardized data collection from most hazardous objects, towers >300 meters (1,000 feet).</p>
<p>XIV. Suggested Methods to Minimize Impacts (Only applicable if new data or study is provided.)</p> <p>Are specific methods identified? Yes ___ No <input checked="" type="checkbox"/> If yes explain and list specific mitigative methods.</p>

Primary Reference or New Data Review Sheet

I. Citation or Source:	
Morris, S.R., A.R. Clark, L.H. Bhatti, and J.L. Glasgow. 2003. Television tower mortality of migrant birds in western New York and Youngtown, Ohio. <i>Northeastern Naturalist</i> 10(1):67-76.	
Source Type (check one): Study	
Peer-reviewed Paper <input checked="" type="checkbox"/>	Other (specify):
Agency Report _____	
Conference Proceedings _____	
II. Study Objectives (list)	
Compare mortality rates among 4 towers.	
III. Species	
20,148 birds; 106 species; 1970-1999 (New York towers = 3); annual mean = 672. 4,310 birds; 80 species; 1974-1992 (Ohio tower = 1); annual mean = 227. NY WRGZ = 8,011 birds. NY WKBW = 11,092 birds. NY WIBV = 1,043 birds. OH WFMY = 4,310 birds.	
IV. Study Methods (briefly list)	
Following overcast nights (8-67 annual visits). 100% survey 164 to 197 feet from tower.	
V. Duration of Study NY = 30 yrs; OH = 18 yrs	
Duration (provide dates): Single Year _____ Multiple Years <u>NY = 1970-1999, OH = 1974-1992</u> NY: 11 annual visits (4-33 nights). OH: 1974 fall survey daily; other periods only after kills or overcast NY: 1971 = daily 29 Aug - 1 Nov	Seasons: Spring Migration _____ Both _____ Fall Migration <input checked="" type="checkbox"/> Yearlong _____

Primary Reference or New Data Review Sheet (cont'd)

VI. Carcass Search Methods (if applicable)
Search Conditions: Daily <input type="checkbox"/> Weekly <input type="checkbox"/> Only after overcast nights with a low ceiling or storm events <input type="checkbox"/>
Other Periods (Describe): See Section V.
Search Biases Evaluated, Including Observer Bias and Scavenger Activity? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Search Area Described? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Scavengers noted, but no calculations or estimates developed for scavenger removal rates.
VII. Analytical and Statistical Methods
Statistical method(s) used: (list)
Largely descriptive. Linear regression to determine whether number of kills declined during course of study.
Comments:
VIII. Number of Tower Sites: 4 Proximity: 3 in NY (S. Erie Co.); 1 in OH
961 feet, 1,076 feet, 1,059 feet, 1,084 feet; all towers guyed w/ red lights (beacon).
IX. Behavioral Observations at the Tower: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Describe if applicable to statement or conclusion being evaluated.
X. Documentation of Weather Factors? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Describe if applicable to statement or conclusion being evaluated.
Only surveyed following overcast conditions.

Primary Reference or New Data Review Sheet (cont'd)

<p>XI. Inclusion of Structural and Landscape Conditions? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p> <p>Describe if applicable to statement or conclusion being evaluated.</p>
<p>XII. Brief Description of Results</p> <p>Collision rates often determined by factors, such as cloud cover, cold fronts, and tailwinds. Reduction in foggy/overcast nights also may contribute, but no data to support other than number of survey days (following overcast nights) were reduced through time.</p> <p>Mort. Rates decrease through time @ all 4 towers.</p> <p>Suggested reasoning:</p> <ol style="list-style-type: none"> 1) Overall decrease in migratory bird populations. 2) Potential change in patterns of wind direction and cloud cover. 3) An increase in predation/scavenger removal. 4) Change in migration patterns. 5) Increase in light pollution. 6) Evolutionary reduction in bird attraction to tower lights. <p>Authors state that study results suggest that factors affecting changes in migrant mortalities are more likely large-scale factors, such as weather patterns and population size (rather than local factors such as increase in predators and scavengers).</p>
<p>XIII. Need for and Scope of Additional Studies (Only applicable if new data or study is provided.)</p> <p>Are additional studies identified? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes explain and list studies.</p> <p>Recommend additional studies on communication towers.</p>
<p>XIV. Suggested Methods to Minimize Impacts (Only applicable if new data or study is provided.)</p> <p>Are specific methods identified? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes explain and list specific mitigative methods.</p>

Primary Reference or New Data Review Sheet

I. Citation or Source:	
Manuwal, D. D. 1963. TV transmitter kills in South Bend, Indiana, Fall 1962. Indiana Audubon Quarterly 41(3):49-53.	
Source Type (check one): Incidental Report	
Peer-reviewed Paper _____ Other (specify): Popular Press	
Agency Report _____	
Conference Proceedings _____	
II. Study Objectives (list)	
Document species and number of bird kills.	
III. Species	
Numbers given by date; no total by tower or period.	
WSBT: few kills prior to 1962 tower reconstruction; mostly warblers (mostly fall kills).	
WSJV: increased kills; warblers and Swainson's thrushes (mostly fall kills).	
IV. Study Methods (briefly list)	
Retrieved carcasses, identified species, and recorded bird numbers by date.	
V. Duration of Study Fall 1961 and 1962	
Duration (provide dates):	Seasons:
Single Year _____	Spring Migration _____ Both _____
Multiple Years <u>1961 and 1962</u>	Fall Migration <input checked="" type="checkbox"/> Yearlong _____

Primary Reference or New Data Review Sheet (cont'd)

VI. Carcass Search Methods (if applicable)	
Search Conditions: Daily <input type="checkbox"/> Weekly <input type="checkbox"/> Only after overcast nights with a low ceiling or storm events <input type="checkbox"/>	
Other Periods (Describe): not detailed	
Search Biases Evaluated, Including Observer Bias and Scavenger Activity? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Search Area Described? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
VII. Analytical and Statistical Methods	
Statistical method(s) used: (list)	
N/A	
Comments:	
VIII. Number of Tower Sites: 2 Proximity:	
WSJV tower: 650 feet = higher number of kills than 350- to 450-foot towers.	
WSBT tower: prior to July 1962 = 3 towers 350- to 450-foot along N-S line; July 1962 - 1,074-foot tower constructed. (Unknown if tower replaced or added.)	
IX. Behavioral Observations at the Tower: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Describe if applicable to statement or conclusion being evaluated.	
X. Documentation of Weather Factors? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe if applicable to statement or conclusion being evaluated.	
Some weather conditions reported for 29 Sep 1962, indicating NW winds (tailwinds), precipitation.	

Primary Reference or New Data Review Sheet (cont'd)

<p>XI. Inclusion of Structural and Landscape Conditions? Yes ___ No <input checked="" type="checkbox"/></p> <p>Describe if applicable to statement or conclusion being evaluated.</p>
<p>XII. Brief Description of Results</p> <p>With NW tailwinds, most carcasses found ≈ 120 yards SE of tower base. Tower comparisons b/w 1961 and 1962 not clear. However, tower comparison b/w WSJV and WSBT fall of 1962 stated to be significant. Fall 1962: WSJV (650-foot) = 23 birds, 4 Sep-25 Nov (≈ 18 species) WSBT (1,074-foot) = 259 birds, 28 Aug-22 Nov (unknown number of species)</p>
<p>XIII. Need for and Scope of Additional Studies (Only applicable if new data or study is provided.)</p> <p>Are additional studies identified? Yes ___ No <input checked="" type="checkbox"/> If yes explain and list studies.</p>
<p>XIV. Suggested Methods to Minimize Impacts (Only applicable if new data or study is provided.)</p> <p>Are specific methods identified? Yes ___ No <input checked="" type="checkbox"/> If yes explain and list specific mitigative methods.</p>

Primary Reference or New Data Review Sheet

I. Citation or Source:	
Larkin, R.P. and B.A. Frase. 1988. Circular paths of birds flying near a broadcasting tower in cloud. <i>Journal of Comparative Psychology</i> 102:90-93.	
Source Type (check one):	
Peer-reviewed Paper <input checked="" type="checkbox"/>	Other (specify):
Agency Report <input type="checkbox"/>	
Conference Proceedings <input type="checkbox"/>	
II. Study Objectives (list)	
Record bird behavior in proximity to towers relative to flight patterns.	
III. Species	
Migrating.	
IV. Study Methods (briefly list)	
Using portable tracking radar 838 m S of tower; recording flight paths (tracks) @ 1-sec intervals to 1-meter resolution.	
V. Duration of Study 1 night - 1983	
Duration (provide dates): Single Year <u>9-10 Sep 1983</u> Multiple Years _____	Seasons: Spring Migration _____ Both _____ Fall Migration <input checked="" type="checkbox"/> Yearlong _____

Primary Reference or New Data Review Sheet (cont'd)

VI. Carcass Search Methods (if applicable) N/A
Search Conditions: Daily ___ Weekly ___ Only after overcast nights with a low ceiling or storm events ___
Other Periods (Describe):
Search Biases Evaluated, Including Observer Bias and Scavenger Activity? Yes ___ No <input checked="" type="checkbox"/>
Search Area Described? Yes ___ No <input checked="" type="checkbox"/>
VII. Analytical and Statistical Methods N/A
Statistical method(s) used: (list)
N/A
Comments:
VIII. Number of Tower Sites: 1 Proximity:
308-meter tower = Michigan. Guyed; red blinking lights. Radio transmitting ceases @ 12:30 am (00:30 hours)
IX. Behavioral Observations at the Tower: Yes <input checked="" type="checkbox"/> No ___ Describe if applicable to statement or conclusion being evaluated.
Flight paths examined
X. Documentation of Weather Factors? Yes <input checked="" type="checkbox"/> No ___ Describe if applicable to statement or conclusion being evaluated.
Overcast; scattered precipitation

Primary Reference or New Data Review Sheet (cont'd)

<p>XI. Inclusion of Structural and Landscape Conditions? Yes ___ No <input checked="" type="checkbox"/></p> <p>Describe if applicable to statement or conclusion being evaluated.</p>
<p>XII. Brief Description of Results</p> <p>Behavior was "remarkably precise." 10 occasions on 9 Sep, birds flying w/in the clouds circled the tower @ distances of 108 to 279 meters. 5 birds exhibited possible reactions not partial circles. Circling of towers only occurred in region of low clouds @ altitudes below the tower. Could not record behavior/flight patterns near tower due to radar limitations.</p> <p>Nonlinear flight patterns in proximity to towers during migration (i.e., possible avoidance or attraction).</p>
<p>XIII. Need for and Scope of Additional Studies (Only applicable if new data or study is provided.)</p> <p>Are additional studies identified? Yes <input checked="" type="checkbox"/> No ___ If yes explain and list studies.</p> <p>Suggests experimental approaches to answering same mortality questions and behavioral patterns of migrating birds.</p>
<p>XIV. Suggested Methods to Minimize Impacts (Only applicable if new data or study is provided.)</p> <p>Are specific methods identified? Yes ___ No <input checked="" type="checkbox"/> If yes explain and list specific mitigative methods.</p>

Primary Reference or New Data Review Sheet

I. Citation or Source:	
Kemper, C.A. 1996. A study of bird mortality at a central Wisconsin TV tower from 1957-1995. Passenger Pigeon 58:219-235.	
Source Type (check one): Study	
Peer-reviewed Paper <input type="checkbox"/>	Other (specify): Popular Press
Agency Report <input type="checkbox"/>	
Conference Proceedings <input type="checkbox"/>	
II. Study Objectives (list)	
Document bird mortalities, species, and numbers.	
III. Species	
121,560 birds through 1994; 123 species. Species list of most prevalent species documented.	
IV. Study Methods (briefly list)	
Carcass retrieval/ bird identification. Searches varies (see Section V).	
V. Duration of Study 38 years	
Duration (provide dates): Single Year _____ Multiple Years <u>1957-1995</u> Prior to 1960 = only mass kills surveyed. After 1960 = almost daily basis.	Seasons: Spring Migration _____ Both _____ Fall Migration _____ Yearlong <input checked="" type="checkbox"/>

Primary Reference or New Data Review Sheet (cont'd)

VI. Carcass Search Methods (if applicable)
Search Conditions: Daily <input type="checkbox"/> Weekly <input type="checkbox"/> Only after overcast nights with a low ceiling or storm events <input type="checkbox"/>
Other Periods (Describe): See Section V.
Search Biases Evaluated, Including Observer Bias and Scavenger Activity? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Search Area Described? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
No scavengers mentioned.
VII. Analytical and Statistical Methods
Statistical method(s) used: (list)
N/A
Comments:
VIII. Number of Tower Sites: 2-3 Proximity: Unknown
West/central Wisconsin Guyed. 1949-1957 = 500-foot 1957 = 1,000-foot alongside 500-foot 1960 = 500-foot tower removed and 2,000-foot tower erected ~40 miles away.
IX. Behavioral Observations at the Tower: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Describe if applicable to statement or conclusion being evaluated.
X. Documentation of Weather Factors? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Describe if applicable to statement or conclusion being evaluated.