

Wind turbines and birds

Putting the situation in perspective in Wisconsin

FACT SHEET



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Despite sophisticated advances in wind turbine siting and equipment design over the last twenty years, rumors persist that wind turbines are dangerous bird killers. Active wind turbine opponents continue to promote this erroneous idea as evidence that construction of wind turbine projects should be halted.

Bird watchers, environmentalists and the general public remain confused. As a source of renewable energy, wind turbines should be part of the solution, not part of the problem. But do wind generators really kill birds, especially declining, rare and protected species? Does wind generation as a technology represent a serious risk to the general bird population?

BIRD DEATHS FROM HUMAN CAUSES

Birds do collide with wind turbines, just as they do with other tall human-made structures. However, it should also be clear that by far the largest causes of mortality among birds include loss of habitat due to human infringement, environmental despoliation and collisions with other human-made objects. The vast grid of utility transmission and distribution lines in the United States is responsible for 130 million to 174 million bird deaths per year.¹ Many victims are raptors, waterfowl and other large birds, electrocuted when their wings bridge two hot wires.

Other birds are killed by colliding with the lines. One report states: "For some types of birds, power line collisions appear to be a significant source of mortality."²

Bird collisions with buildings and houses are also significant. There are five million tall buildings in U.S. cities. Some have been documented as being continual hazards for night-migrating birds. Although most of the 100 million houses in the U.S. are in towns and cities, most residential bird collisions occur in rural areas.

There are no ongoing studies of this phenomenon, but the best estimates put bird deaths from structural collisions at between 100 million and a staggering one billion deaths annually.³

Lighted communication towers have been found to be highly dangerous for birds, particularly at night. One study concludes, "It is apparent from the analysis of the data that significant numbers of birds are dying in collisions with communication towers, their guy wires, and related structures."⁴ Another report states: "The main environmental problem we are watching out for with telecommunication towers is the death of birds and bats."⁵

The number of telecommunication towers in the U.S. currently exceeds 77,000, and this number could easily double by 2010. The rush to tower construction is being driven by growing use of cell phones and by the



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(above) **Birds live a tenuous existence. About 30 percent of total first-year bird deaths are attributed to collisions with natural objects, particularly when young birds are learning to fly.**

(right) **Night migration is common for many songbirds, which presents obvious hazards. Songbirds sometimes collide with lighted communications towers as well as other structures while flying at night.**



impending switch to digital television and radio. Current tower mortality estimates are 40 million to 50 million birds per year.⁶ Scientists believe that the main factors in these large bird kills are low cloud ceilings and visibility, the blinking red lights and the guy wires. Bird collisions with communication towers have been documented for over 50 years. Some towers are responsible for very high episodic fatalities. One television transmitter tower in Eau Claire, Wisconsin, was responsible for the deaths of over 1,000 birds on each of 24 consecutive nights. A “record of 30,000 birds were estimated killed on one night” at this same tower.⁷ In Kansas, 10,000 birds were killed in one night by a communication tower.⁸

Our dependence on automobile transportation, and the oil to fuel it, has taken its toll on birds too. Collisions with vehicles result in 60 million to 80 million bird deaths annually.⁹ And even the relatively high incidence of bird kills at the Altamont Pass wind farm pales in comparison to birds killed by oil spills such as the Exxon Valdez in Alaska. In fact, according to author Paul Gipe, the Altamont Pass would have to operate for 500 to 1,000 years to

reach the same mortality level as the Exxon Valdez event in 1989.

Agricultural pesticides are “conservatively estimated” to kill 67 million birds per year directly.¹⁰ These numbers do not include deaths from other pesticide applications, such as on golf courses, or secondary losses when birds die from poisoned food.

Cats, both feral and domestic, also take their toll on birds. A Wisconsin Department of Natural Resources (DNR) report states, “recent research suggests that rural free-ranging domestic cats in Wisconsin may be killing between 8 million and 217 million birds each year. The most reasonable estimates indicate that 39 million birds are killed in the state [Wisconsin] each year.”¹¹

There are other studies on the impacts of jet engines, smoke stacks, bridges and other human activities that threaten birds daily. Together, human infrastructure and industrial activities are estimated to be responsible for one million to four million bird deaths per day!

BIRD DEATHS CAUSED BY COMMERCIAL WIND TURBINES

Since the mid-1980s, many studies have been conducted on avian mortality due to wind turbines. These studies were prompted in the U.S. because of the relatively high number of raptors that were found dead at the Altamont Pass wind farms near San Francisco. A report recently prepared for the Bonneville Power Administration states that “raptor mortality has been absent to very low at all newer generation wind plants studied in the U.S. This and other information regarding wind turbine design and wind plant/wind turbine siting strongly suggests that the level of raptor mortality observed at Altamont Pass is quite unique [in the North American Continent].”¹² Several factors influenced raptor mortality at Altamont, including tower placement and design that did not consider the local ecosystem, and the turbine and tower technologies in use at the time.

In fact, a very different situation exists at the San Geronio Pass wind farms near Palm Springs. A 1986 study found that 69 million birds flew through the San Geronio Pass during spring and fall migrations. During both seasons, only 38 dead birds were found, representing just 0.00006 percent of the migrating population.

The National Wind Coordinating Collaborative (NWCC) completed a report that analyzed all of the avian mortality research conducted to date. The report compares the various hazards created by humans, including commercial wind farm turbines. This report states that its intent is to “put avian mortality associated with wind power development

into perspective with other significant sources of avian collision mortality across the United States.”¹³

The NWCC reports: “Based on current estimates, wind plant-related avian collision fatalities probably represent from 0.01 percent to 0.02 percent (i.e., 1 out of every 5,000 to 10,000) of the annual avian collision fatalities in the United States.” They continue: “Data collected outside California indicate an average of 1.83 avian fatalities per turbine (for all species combined), and 0.006 raptor fatalities per turbine per year.”¹⁴

BACK IN WISCONSIN

In December of 2002, Dr. Robert Howe and Amy Wolf of the University of Wisconsin-Green Bay, and ornithological consultant William Evans, released the report “Effects of Wind Turbines on Birds and Bats in Northeast Wisconsin.” Their study covered a two-year period between 1999 and 2001, in the area surrounding the 31 turbines owned by Madison Gas & Electric and Wisconsin Public Service Corporation in Kewaunee County.

The report found that 25 bird carcasses were found at the sites over the two-year study period. It states, “The resulting mortality rate of 1.29 birds per tower per year is close to the nationwide estimate of 2.19 birds per tower per year.”¹⁵ The report further states: “While bird collisions do occur (with commercial wind turbines) the impacts on global populations appear to be relatively minor, especially in comparison with other human-related causes of mortality such as communication towers, collisions with buildings, and vehicle collisions. This is especially true

for small scale facilities like the Madison Gas & Electric and Wisconsin Public Service Corporation wind farms in Kewaunee County.”¹⁶

The report goes on to say: “Previous studies suggest that the frequency of avian collisions with wind turbines is low, and the impact of wind power on bird populations today is negligible. Our study provides little evidence to refute this claim.”¹⁷ Bird mortality at wind farms, in relation to other human-related causes, is biologically and statistically insignificant. There is no evidence that rotating wind turbine blades are routinely killing large numbers of birds, as suggested by critics of wind power.

HOME-SIZED WIND SYSTEMS

While there have been any number of studies conducted on bird mortality caused by commercial wind installations, none has examined the impact of home-sized wind systems on birds in Wisconsin or elsewhere. Because of the relatively smaller blades and short tower heights, home-sized wind machines are considered too small and too dispersed to present a threat to birds. Researchers do not consider a study of home-sized wind systems worth funding.

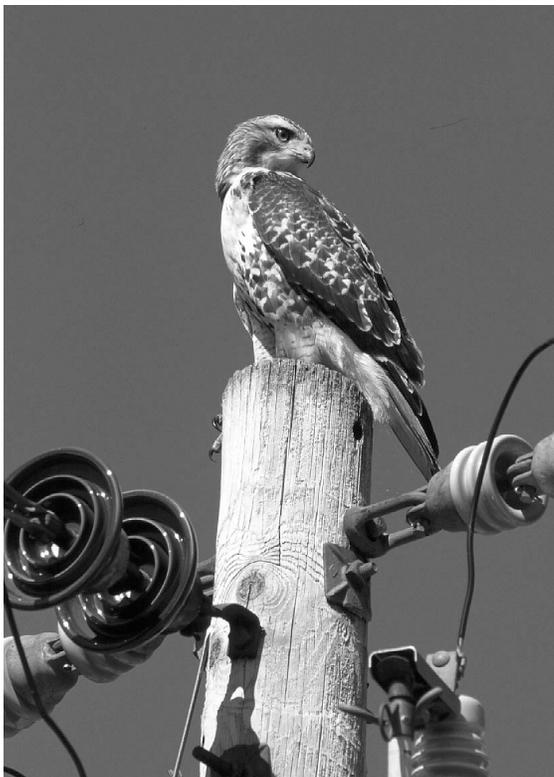
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(below left) **Many raptors, like this Red-tailed Hawk, make use of power poles to watch for prey. Power poles and lines are not entirely benign, however.**

(below) **Statistically speaking, the power poles and lines near the Kewaunee County wind farm are more likely to kill birds than the turbines.**

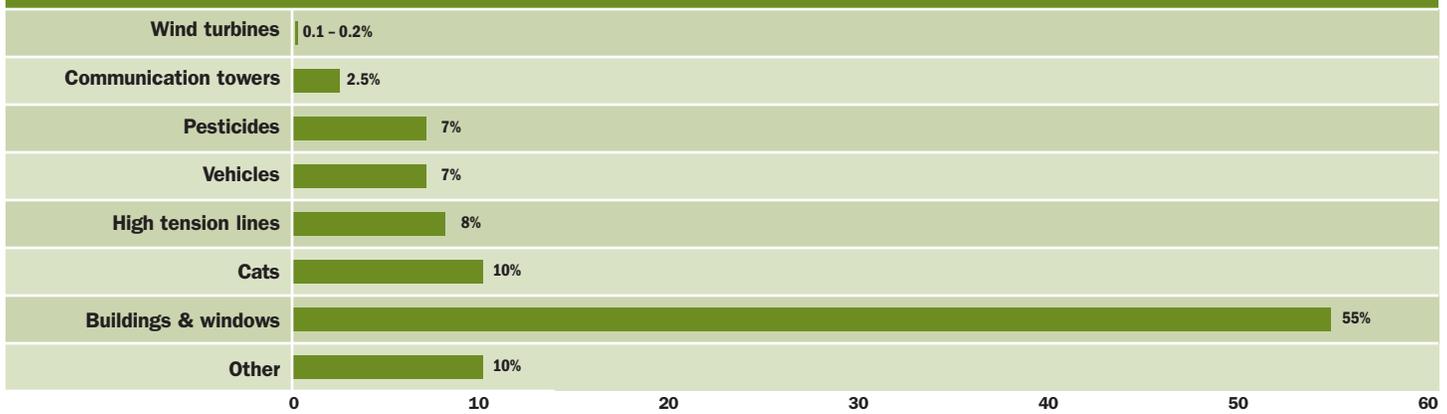


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% OF ANNUAL BIRD FATALITIES BY SOURCE



SOURCE: Wallace P. Erickson, Western EcoSystems Technology, Inc.



TDL ELECTRONICS

Residential wind turbines like this one pose little, if any, threat to birds. They are simply too small and too far apart.

NOTES

- ¹ Avian Collisions with Wind Turbines: A Summary of Existing Studies and Comparisons to Other Sources of Avian Collision Mortality in the United States; National Wind Coordinating Committee; West, Inc.; August, 2001, pg 10
- ² Ibid, pg 10
- ³ Tower Kill; Joe Eaton; Earth Island Journal; Winter, 2003, pg 2
- ⁴ Communication Towers: A Deadly Hazard To Birds; Gavin G. Shire, Karen Brown, and Gerald Winegrad; American Bird Conservancy; June, 2000, pg 19
- ⁵ Battered by Airwaves; Wendy K. Weisenel; Wisconsin Department of Natural Resources; October, 2002, pg 6
- ⁶ Avian Collisions with Wind Turbines: A Summary of Existing Studies and Comparisons to Other Sources of Avian Collision Mortality in the United States; National Wind Coordinating Committee; West, Inc.; August, 2001, pg 12
- ⁷ Battered by Airwaves; Wendy K. Weisenel; Wisconsin Department of Natural Resources; October, 2002, pg 6
- ⁸ Communication Tower Guidelines Could Protect Migrating Birds; Cat Laazaroff; Environmental News Service, 2002, pg 2
- ⁹ Avian Collisions with Wind Turbines: A Summary of Existing Studies and Comparisons to Other Sources of Avian Collision Mortality in the United States; National Wind Coordinating Committee; West, Inc.; August, 2001, pg 8
- ¹⁰ The Environmental and Economic Costs of Pesticide; David Pimentel and H. Acquay; Bioscience; November 1992, pg 1
- ¹¹ Cats and Wildlife: A Conservation Dilemma; John S. Coleman, Stanley A. Temple, and Scott R. Craven; University of Wisconsin-Extension; 1997, pg 2
- ¹² Synthesis and Comparison of Baseline Avian and Bat Use, Raptor Nesting and Mortality Information from Proposed and Existing Wind Developments, pg 7
- ¹³ Avian Collisions with Wind Turbines: A Summary of Existing Studies and Comparisons to Other Sources of Avian Collision Mortality in the United States; National Wind Coordinating Committee; West, Inc.; August, 2001, pg 1
- ¹⁴ Ibid, pg 2
- ¹⁵ Effects of Wind Turbines on Birds and Bats in Northeast Wisconsin; Robert W. Howe, William Evans, and Amy T. Wolf; November 2002, pg 68
- ¹⁶ Ibid, pg 75
- ¹⁷ Ibid, pg 67

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