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January 7, 2016

**VIA CERTIFIED MAIL RETURN RECEIPT**  
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Honorable David R. Van Ort (David.VanOrt@dps.ny.gov)

Administrative Law Judge  
State of New York  
Department of Public Service  
Three Empire State Plaza  
Albany, NY 12223-1350

Hon. Kathleen H. Burgess  
Secretary to the Commission  
NYS Department of Public Service  
3 Empire State Plaza  
Albany, NY 12223

Re: Lighthouse Wind LLC  
CASE 14-F-0485

**Expert Comments on PSS Prepared by William R. Evans Regarding the PSS and  
the Avian and Bat Study Plan made on behalf of the Town of Somerset**

Your Honors:

As you are aware, this office represents the Town of Somerset ("Somerset") with regard to Apex Clean Energy's ("Apex's") proposed Lighthouse Wind project ("the Project").

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Enclosed as Exhibit 1 please find an expert opinion letter drafted by William R. Evans on behalf of the Town of Somerset. Mr. Evans is a noted ornithologist and an expert on avian impacts at industrial wind facilities. He currently works as the Executive Director of Old Bird Inc., a 501(c)3 nonprofit corporation dedicated to facilitating acoustic monitoring of avian night flight calls. A copy of Mr. Evans curriculum vitae is enclosed as Exhibit 2.

The Town of Somerset intends to file additional comments, and additional expert comments, prior to the January 12, 2016 deadline. Regardless of these comments, the Town still maintains the PSS is premature and should be stricken from the record, or in the alternative the deadline for filing comments should be indefinitely suspended.

Please contact me if you have any questions.

Best Regards,

Lippes Mathias Wexler Friedman LLP

Dennis C. Vacco

DCV/sjc

Encl.

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**\*All cc via DMM website and individual email.**

# **EXHIBIT 1**

**Comments on the Lighthouse Wind Project Preliminary Scoping Statement Regarding  
Gaps in Necessary Avian Studies**

**Prepared for:**

Lippes Mathias Wexler Friedman LLP  
50 Fountain Plaza, Suite 1700  
Buffalo, NY 14202-2216

January 6, 2016

Prepared by:

William R. Evans  
Old Bird Inc.  
PO Box 45  
Ithaca, NY 14851

## INTRODUCTION

This report is part of an intervenor response in the NY Article 10 proceeding for the proposed Lighthouse Wind Project (LWP) centered in the Towns of Somerset and Yates, Niagara and Orleans Counties, New York. The report was requested by Lippes Mathias Wexler Friedman LLP, attorneys for the Town of Somerset. I have been retained to assist in evaluating the project's Preliminary Scoping Statement (PSS) regarding potential avian impacts.

In assessing potential avian impacts, the PSS relies on the *Avian and Bat Study Plan* for the LWP, created by Ecology and Environment, Inc. (revision 1, May 22, 2015). In composing this comment, I have reviewed the *Avian and Bat Study Plan*, as well as additional documents, including the New York State Department of Environmental Conservation *Guidelines for Conducting Bird and Bat Studies at Commercial Wind Energy Projects* (NYDEC 2009); the United States Fish and Wildlife Service (USFWS) *Land-based Wind Energy Guidelines* (USFWS 2012); comments by USFWS (May 5, 2015); and information from existing bird migration studies and avian impact studies in the vicinity of Lake Ontario and Lake Erie.

This report describes numerous gaps in the Avian and Bat Study Plan as proposed, and presents recommendations and rationale for additional avian studies. In general, the Avian Study Plan fails to address the following key issues: (1) Characterization of nocturnal migration activities; (2) Martin and swallow roost site and activity mapping; and (3) Cumulative avian impact analysis. These gaps are described in detail below.

## MAJOR AVIAN STUDY GAPS

### I. Characterization of Nocturnal Migration Activity

#### A. Nocturnal Migration Concentration Dynamics Not Addressed

The LWP's *Avian and Bat Study Plan* is deficient because it fails to address nocturnal bird migration. Nocturnal bird migration should be addressed because lakeshore concentration dynamics occur for nocturnal migrating birds, particularly in weather conditions that are not conducive for lake crossing. This has been indicated by an acoustic monitoring study at the Derby Hill Bird Observatory near the southeastern corner of Lake Ontario, which detects flight calls from night migrating birds.<sup>1</sup> On certain nights during the spring migration period, sharp spikes in the number of calls have been detected that are an order of magnitude greater than average nights. Such spikes have not been noted at simultaneously monitored inland monitoring sites, and the phenomenon is presumed to be due to lakeshore concentration dynamics. The events have occurred on nights that do not have steady southerly winds conducive for crossing Lake Ontario. The theory is that birds are eager to get to their breeding grounds to the north, and so they move on conditions that allow them to make reasonable progress. But when they reach the lake, depending on the species, the angle of the lakeshore, wind direction and speed, they may opt to fly around the lake instead of risk crossing. The density of migrating birds increases as more and more birds come up against the lake and join the circumnavigating stream of birds. The length of shoreline involved in such conditions may determine the ensuing migration density and the breadth of the concentrated stream (distance from lakeshore). Recent radar studies by USFWS proximal to the LWP have indicated large numbers of nocturnal migrants paralleling the lakeshore (USFWS letter to Apex May 6, 2015).

Spring nocturnal migration concentration dynamics undoubtedly occur in the shoreline region of the LWP site. As a result, the PSS completely fails to address the following critical issues:

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<sup>1</sup> <http://oldbird.org/Data/2015/DHBO/Derby.htm>

1. What are the density characteristics of the flight? In other words, how many, and where are the birds flying when they opt to circumnavigate rather than cross Lake Ontario?
2. If there is a higher concentration of migration birds near the lake shore, how far does the concentration phenomenon extend inland?
3. Which direction do nocturnal migrants go when they circumnavigate the lake?
4. Do lakeshore concentrations from Lake Erie spill onto the Lake Ontario shoreline?
5. What are the altitude characteristics of circumnavigating flights?

In summary, the LWP avian study plan fails to address nocturnal migration concentration dynamics, and further studies of this issue and the related issues below should be conducted.

**B. Nocturnal Migration Concentration Dynamics Not Addressed with Regard to Species with Declining Populations.**

A range of species with declining populations, including many of conservation concern with special status in New York, migrate at night across western New York. The following special status species in NY are likely subject to elevated collision risk due to lakeshore vicinity concentration dynamics during nocturnal migration:

- Short-eared Owl (NYS: Endangered)
- Least Bittern (NYS: Threatened)
- Upland Sandpiper (NYS: Threatened)
- Sedge Wren (NYS: Threatened)
- Henslow's Sparrow (NYS: Threatened)
- American Bittern (NYS: Special Concern)
- Common Nighthawk (NYS: Special Concern)
- Whip-poor-will (NYS: Special Concern)
- Red-headed Woodpecker (NYS: Special Concern)
- Horned Lark (NYS: Special Concern)
- Golden-winged Warbler (NYS: Special Concern)

Cerulean Warbler (NYS: Special Concern)

Vesper Sparrow (NYS: Special Concern)

Grasshopper Sparrow (NYS: Special Concern)

There are additional species with special conservation status in Ontario, Canada that migrate through the LWP site. For example, the Bobolink, which has Threatened status and the Kirtland's Warbler, which has Endangered status. The Kirtland's Warbler is a Federally Endangered species in the US, but the rare individuals that may show up on the south shore of Lake Ontario in spring could be from the small population that has been nesting northwest of Ottawa (estimated population <50). An individual of this species was reported less than 20 miles east of the LWP site in 2014.<sup>2</sup> Such sightings could also be individuals from the US population nesting in MI and WI that were blown east of their typical spring migration route. In summary, none of the species listed above are adequately addressed by the LWP avian study plan.

**C. Lack of Consideration for Nocturnal Migration Concentrations in the LWP Avian and Bat Study Plan Indicates Lack of Awareness of the Scale of Potential LWP Impacts to Night Migrating Birds.**

Although recent avian impact analysis studies estimating continental-scale population effects from wind energy point to low impacts of the existing wind energy buildout for most species (See Zimmerling et al. 2013<sup>3</sup>, Loss et al. 2013<sup>4</sup>, and Erickson et al. 2014<sup>5</sup>), it is important to realize that the projects that compose this data are almost all inland projects that are not sited in coastal migration concentration areas. The one coastal wind project's data that is included

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<sup>2</sup> <http://www.democratandchronicle.com/story/environment/2014/06/03/kirtlands-warbler-in-hamlin/9866659/>

<sup>3</sup> Zimmerling, J. R., A. C. Pomeroy, M. V. d'Entremont, and C. M. Francis. 2013. Canadian estimate of bird mortality due to collisions and direct habitat loss associated with wind turbine developments. *Avian Conservation and Ecology* 8(2): 10. <http://dx.doi.org/10.5751/ACE-00609-080210>.

<sup>4</sup> Loss, S.r., T. Will, and P.P. Marra. 2013. Estimates of bird collision mortality at wind facilities in the contiguous United States. *Biological Conservation* 168:201-209.

<sup>5</sup> Erickson W.P., M.M. Wolfe, K.J. Bay, D.H. Johnson, J.L. Gehring. 2014. A Comprehensive Analysis of Small-Passerine Fatalities from Collision with Turbines at Wind Energy Facilities. *PLoS ONE* 9(9): e107491. <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0107491>

(Zimmerling et al.) is the only existing coastal region wind project on Lake Ontario – the Wolfe Island Wind Project at the northeastern corner of Lake Ontario near Kingston. In 2010 this wind project was documented to have the highest avian fatality rate of any wind project in eastern North America with an annual fatality rate of over 20 birds per turbine when an estimate for carcasses falling beyond 50 m was factored in.

Additional data indicates lake shore wind turbines may result in a high rate of avian mortality. The Province of Ontario has fostered a large build out of commercial wind energy since 2010, including significant development along the north shore region of Lake Erie where lakeshore concentrations may occur. Fatality results from most of these wind projects are not publically available in order to protect wind developers from lawsuits. But many wind developers agree to submit their fatality data to an anonymous database currently managed by Bird Studies Canada, Environment Canada, and the Canadian Wind Energy Association. These organizations produced a summary of Canadian fatality data in the database in 2014.<sup>6</sup> In this compilation, fatality study results from Ontario are summarized as follows:

“Based on data collected at 25 wind power projects for 40 project-years between 2007 and 2012, the estimated Ontario turbine mortality for all birds, including raptors was  $5.45 \pm 0.76$  birds/turbine (Table 9) for the period of May 1st to October 31st and ranged from 0 and 24.49 birds/turbine.”

- Bird Studies Canada et al. 2014, p.35

Since the fatality study methods promoted by the Ontario Ministry of Natural Resources and Forests only involves carcass searches out to 50 m, then to estimate actual fatalities, fatality rates should be multiplied by two, as Zimmerling et al. (2013) did. It is therefore now suspected that a single wind project in Ontario has been documented to be killing nearly 50 birds per turbine per year. While we currently do not know the specifics, there appears to be a wind project in Ontario with a avian fatality rate an order of magnitude higher than the average fatality rate documented

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<sup>6</sup> Bird Studies Canada, Canadian Wind Energy Association, Environment Canada and Ontario Ministry of Natural Resources. 2014. Wind Energy Bird and Bat Monitoring Database Summary of the Findings from Post-construction Monitoring Reports July 2014. [http://www.bsc-eoc.org/resources/wind/Wind\\_database\\_summary\\_July2014.pdf](http://www.bsc-eoc.org/resources/wind/Wind_database_summary_July2014.pdf)

in Ontario and New York. It is suspected to be one of the wind projects in the Great Lakes coastal region.

The point here is that existing wind development in New York has largely occurred inland. As a result, necessary nocturnal migration studies regarding the impact of wind turbines located on the shore lines of Lakes Erie and Ontario have not been performed. There is only one such study I am aware of -- the preconstruction radar study in the vicinity of the Lake Erie shore for the defunct Chautauqua Wind Project proposal near Ripley, NY. This study showed nocturnal migration rates ten times higher (395 targets/km/hr) than an existing regional inland radar study at the proposed Weathersfield, NY wind project (41 targets/km/hr).<sup>7</sup> The disparity supports the existence of lakeshore migration concentration phenomenon at the coastal site.

One small 14 turbine project has been completed on the eastern shore of Lake Erie at the narrowest point of the lake. The project, called Steel Winds, slipped through under the scrutiny of NYDEC and USFWS and no nocturnal migration study was performed. A low-resolution fatality study was eventually carried out at this project, and it did not reveal impacts out of the ordinary. The project exists just south of Buffalo, NY, and just north-northwest of the point where the southern shoreline of Lake Erie sharply turns from running southwest-to-northeast to running south-southeast to north-northwest. It is likely that the lower mortality rates at the Steel Winds project site are the result of the turbine placement being outside the theoretical path of highest migration concentrations that may occur along the southern shoreline of Lake Erie in spring.

In summary, the fact that spring nocturnal migration studies are not included in the current LWP *Avian and Bat Study Plan* suggests that Apex and its environmental consultant, Ecology & Environment, Inc. are unaware of the potentially large impacts the project may have. As noted previously, such impacts may be one to two orders of magnitude higher than

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<sup>7</sup> Cooper et al. 2004. A Visual and Radar Study of 2003 Spring Bird Migration at the Proposed Chautauqua Wind Energy Facility, New York. Report prepared for Chautauqua Windpower LLC.

inland projects during spring migration. All indications suggest the LWP could have the highest spring bird fatality rate of any existing wind project in North America. And spring migration fatalities, especially females, potentially have more impact on population than those in fall migration because of the potential loss of a productive nest.

**D. The LWP Avian Study Plan Fails to Incorporate "Expanded" Preconstruction Studies Recommended for Projects of this Type**

NYDEC Guidelines for Commercial Wind Energy indicates that "expanded" pre-construction studies may be recommended if a developer proposes to construct a wind energy project in "proximity (approximately 5 miles) to the Atlantic coastline, the shoreline of one of the Great Lakes, or the corridor of large rivers (e.g. the Hudson, St. Lawrence)." The majority of the proposed LWP site is within 2 miles of Lake Ontario. The western third of the project extends almost 3 miles from Lake Ontario.

The LWP certainly qualifies for "expanded" studies based on the NYDEC Guidance. Furthermore, the LWP would be the first large scale commercial wind energy facility in New York State located in the shoreline region of the Great Lakes. So, it is important that detailed pre-construction nocturnal migration studies are undertaken at the proposed LWP site to provide an understanding of the scale of the potential avian collision impact at night. Existing fatality studies in eastern North America all indicate that nocturnal migrants are the most common avian fatalities at wind projects.

**II. The LWP Avian Study Plan Neglects to Address Purple Martin and Swallow Roost Site Mapping**

While few Purple Martins or swallows have been documented as fatalities at the 20+ commercial wind energy projects in New York, records of their fatalities at wind projects in Ontario are substantial. The issue first came to light during the early stages of the 2009-2012 fatality studies at the Wolfe Island Wind Project, proximal to Cape Vincent, NY. Subsequent analysis has demonstrated that on average as many as 100 Purple Martins per year have been killed by that 86-turbine wind project, or roughly 1.2 per turbine per year. The 2014

summary of wind energy fatalities documented in the Canadian Wind Energy Bird and Bat Monitoring Database indicated that Purple Martin and Tree Swallow are in the top five of all species in the database with the former comprising 6% of all fatalities and the latter 8.8%. Both species have been in long-term population decline in Ontario. In New York, no statewide decline in martins is evident in the Breeding Bird Survey data through 2005, but there was a 40% decline in the number of blocks that the species was detected in between the 1981-1985 and the 2001-2005 NY Breeding Bird Atlas. During the same period the Tree Swallow only showed declines in the Adirondack region.

The proclivity of martin and tree swallows to be involved in wind turbine collisions in Ontario has been tied to the proximity of numerous wind projects on the shoreline regions of the Great Lakes where these species are relatively common breeders, and where they aggregate in mid-to-late summer roosts that involve thousands of individuals. As of 2015, New York has not developed coastal regions of the Great Lakes for wind energy, and this is likely why there have been few martin and tree swallow fatalities documented so far. That should be expected to change if projects like the LWP are built. Given that wind projects have long life cycles, up to 30 years, it is important to consider siting of wind projects with regard to existing mid-to-late summer martin and swallow roosts. The May 22, 2015 *Avian and Bat Study Plan* for the LWP does not include such surveys.

### **III. The LWP Avian Study Plan Fails to Address Cumulative Avian Impacts**

There's a Catch-22 with avian impacts at wind turbines in that as a species becomes less common, there is less of a chance it will show up as a fatality at wind projects. As a result, fatality data may not indicate when a problem exists. This is even the case in New York, a state where relatively robust fatality studies are promoted by NYDEC. Under the more robust NYDEC study requirements, fatality surveyors still only find about one out of ten small bird carcasses that are estimated to be killed.<sup>8</sup> This is due to carcass removal by scavengers, the

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<sup>8</sup> Evans. W.R. 2012. Avian Acoustic Monitoring Study at the Maple Ridge Wind Project 2007-2008. New York State Energy Research and Development Authority, Albany, NY. NYSERDA Report 12-23.

fact the surveyors miss some carcasses, and that some fall beyond the search zone. What this means is that if the LWP were to be built, and if for example a rare Kirtland's Warbler was a collision victim, there would likely only be a one in ten chance of finding it—and that would be during the few years that fatality surveys were carried out. Meanwhile the project may continue on for 30 years.

As noted previously, recent studies by Zimmerling et al. (2013), Loss et al. (2013), and Erickson et al. (2014) estimate current wind energy impacts for many species in the hundredths of a percent per year of their continental population. So far such impacts have not raised much concern. But when one considers that estimates of migration density in spring may be one to two orders of magnitude higher than inland projects, and that fatality rates likely mirror this, then in theory some coastal zone projects may have fatality rates equivalent to 10 to 100 times that of similarly sized inland wind projects. As noted previously, a wind project in the province of Ontario has already been documented to have a fatality rate of 10x the average Ontario fatality rate. And wind energy development in the coastal region of the Great Lakes in Ontario is now estimated to be a major factor in the decline of the Purple Martin in Ontario.

To address the potentially severe threat posed by wind energy expansion in the shoreline regions of the Great Lakes, cumulative impact studies acknowledging and accounting for the following issues should be required:

1. The potentially 10x to 100x higher fatality rates of coastal wind projects.
2. The fact that standard fatality studies are not robust enough to enable modelling of wind energy population impacts to special status species.
3. The fact that wind energy projects have a projected life span of up to 30 years.

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December 2012. 35 pp. <http://www.nyserda.ny.gov/-/media/Files/Publications/Research/Environmental/Avian-Acoustic-Monitoring-Study-Maple-Ridge.pdf>

4. The fact that many species have been in long-term decline and their status is likely to change over the lifetime of a wind project. For example, both Upland Sandpiper and Henslow's Sparrow are currently listed as Threatened in NY. Both are on the cusp of being listed as Endangered and in all likelihood will be listed as such in the near future. Other species that currently have no special status listing are likely to be listed during the course of currently proposed wind projects in NY. In many cases these future listings can be forecasted based on current rates of decline (e.g., Purple Martin).

#### **SUMMARY**

This report details three major gaps in the Lighthouse Wind Project *Avian and Bat Study Plan (Rev. 1, May 22<sup>nd</sup> 2015)*:

1. Characterization of nocturnal migration activity
2. Martin and swallow roost site and activity mapping.
3. Cumulative avian impact analysis

The analysis in this report only regards gaps in the avian study plan proposed in the PSS. These are studies that currently should be conducted for any proposed commercial wind energy project in the coastal region of the Great Lakes. The analysis does not address potential flaws in the design of studies that have been proposed in the *Avian and Bat Study Plan (Rev. 1, May 22<sup>nd</sup> 2015)*.

Respectfully submitted,



William R. Evans  
Executive Director  
Old Bird Inc.  
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501(c)(3) nonprofit

# **EXHIBIT 2**

***Curriculum vitae***  
**William Ross Evans**  
**Ornithologist**

(Specializing in the study of nocturnal bird migration)

**Biography & accomplishments:**

Noted expert on bird vocalizations of eastern North America; co-authored the 2002 CD-Rom: Flight Calls of Migrant Landbirds (Eastern North America).

Over the past 30 years developed the method of studying nocturnal bird migration by monitoring avian flight calls. This expertise led to actions and research toward minimizing avian impact at communications towers and industrial-scale wind turbines since 1994.

**Involvement with the issue of avian impacts from communications towers and artificial light since 1998:**

Created [www.towerkill.com](http://www.towerkill.com) (1998), a website for distributing information on the issue of avian mortality at communications towers.

Director of New York State Towerkill Survey evaluating whether large avian mortality events were still occurring at 15 tall television towers in central NY. Coordinated permissions, permits, and volunteer surveyors, and participated in surveys. Largest single night/single tower kill documented was ~250 songbirds. 1998-1999.

Co-organized the first conference toward mitigating avian mortality at communications towers – held during the 119<sup>th</sup> meeting of the American Ornithologist's Union at Cornell University in August 1999.

Became member of the US Fish & Wildlife Service's Communications Tower Working Group (CTWG) in 1999.

Received funding from the CTWG for research toward mitigating avian mortality at communications towers in 2003. This led to a novel study on the impact of artificial light on night migrating birds ([Evans et al. 2007](#)) that supported the legal case to move the US Federal Communication Commission (FCC) & US Federal Aviation Administration (FAA) to approve solely flashing aviation obstruction lighting, a regimen for communication towers that has less impact on night migrating songbirds. (FCC: Effects of Communications Towers on Migratory Birds, WT Docket No. 03-187).

Principal investigator on a grant from the Park Foundation to study the impact of artificial light on night migrating birds. Study involved thermal imaging and acoustic monitoring during changing artificial light conditions. 2008-2011.

**Involvement with avian impacts at commercial wind farms since 1994:**

Conducted avian impact studies for developers of 9 commercial wind farms in the US (see list of energy-related contracts below).

Provided consultation and critical review of environmental impact statements for opponents of six commercial wind projects (see list of energy-related consultation below).

Gave expert testimony at Hearings before the Maryland & West Virginia Public Service Commissions regarding the impacts of specific wind energy projects on night migrating birds (2002 & 2003).

Invited speaker for US Environmental Protection Agency organized conference (2006) "Toward Wildlife-Friendly Windpower". A conference toward minimizing wind-power effects on wildlife and toward developing consistent wind energy management approaches within the Great Lakes basin.

Invited speaker for New York State Energy Research and Development Authority and New York Department of Environmental Conservation conference (2006) "Wind and Wildlife Issues" workshop. A workshop identifying informational needs for assessing potential impacts of wind power development on birds and bats.

Principal investigator (subcontracted) for the US Government in building a datagap analysis for avian impacts of offshore wind energy along the US eastern coastal region (Michel et al. 2007 – see publications).

Co-authored 2009 letter to US and Canadian wildlife agencies regarding avian impact of a mass build out of commercial wind energy facilities in the near-shore region of northeastern Lake Ontario.

Principal investigator in a New York State Energy Research and Development Authority (NYSERDA) study of avian impacts at the Maple Ridge Wind Project in northern New York. (Evans 2012a & 2012b – see publications)

Retained as an expert by the Town of Cape Vincent in the New York State Article 10 proceeding regarding British Petroleum's Cape Vincent Wind Project in upstate New York. 2013.

Gave expert testimony before Ontario's Environmental Review Tribunal regarding four wind projects between 2013-2015 (Ostrander, Ernestown, White Pine, and Amherst Island Wind Projects).

Gave expert testimony before In the US District Court For The Western District Of Michigan Northern Division regarding the expansion of the Garden Peninsula Wind Project in northern Michigan. 2015.

My current research involves developing an independent population index for many species of night migrating birds based on long-term monitoring of the vocalizations they give in nocturnal migration. I am also involved with studies toward understanding the impacts of artificial light on night-migrating birds and the concentration dynamics of night-migrating birds along shorelines and their channeling in montane terrain. My research has been featured on BBC, CBC, NPR, PBS (NOVA), and in The New York Times, Science and numerous other science-news periodicals. I live with my wife and two children in Ithaca, NY.

**Education:** Oberlin College ('77-'81); University of Minnesota ('82-'86). No degrees sought.

**Peer-reviewed publications:**

Evans, W.R. 2012. An Evaluation of the Potential for Using Acoustic Monitoring to Remotely Assess Aerial Vertebrate Collisions at Industrial Wind Energy Facilities. New York State Energy Research and Development Authority, Albany, NY. NYSERDA Report 12-26. December 2012. 17 pp. Study and supporting material downloadable at <http://www.oldbird.org/nysesda/nysesda.htm>

Evans, W.R. 2012. Avian Acoustic Monitoring Study at the Maple Ridge Wind Project 2007-2008. New York State Energy Research and Development Authority, Albany, NY. NYSERDA Report 12-23. December 2012. 35 pp. <http://www.nysesda.ny.gov/-/media/Files/Publications/Research/Environmental/Avian-Acoustic-Monitoring-Study-Maple-Ridge.pdf>

Evans, W.R. 2010. Response by William R. Evans to: Green light for nocturnally migrating birds. *Ecology and Society* 15(3): r1. <http://www.ecologyandsociety.org/vol15/iss3/resp1/>

Evans, W.R., Y. Akashi, N.S. Altman, and A.M. Manville II. 2007. Response of night-migrating songbirds in cloud to colored and flashing light. *North American Birds* 60:476-488. <http://www.oldbird.org/pubs/lightstudy.pdf>

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**Wind energy related contracts held:**

**For:** Nebraska Public Power District (NPPD)

**Position:** Principal Investigator

**Description:** Acoustic monitoring of night migrating birds at a proposed wind farm, 1996-1997.

**For:** Wisconsin Public Service Corporation (WPSC)

**Position:** Principal Investigator

**Description:** Monitoring the species composition, altitude characteristics, and numbers of night-migrating birds for assessing the potential impact of wind turbines in Northern Wisconsin. 1999-2001. **Report available at:** [http://docs.wind-watch.org/Howe\\_2002\\_wind-turbines-birds-bats-ne-wisc.pdf](http://docs.wind-watch.org/Howe_2002_wind-turbines-birds-bats-ne-wisc.pdf)

**For:** Clipper Windpower, LLC

**Position:** Principal Investigator

**Description:** Monitoring the species composition, altitude characteristics, and numbers of night-migrating birds for assessing the potential impact of wind turbines in western Maryland. 2003.

**For:** Ecogen, LLC

**Position:** Principal Investigator

**Description:** Acoustic monitoring the species composition, altitude characteristics, and numbers of night-migrating bird. Carried out breeding bird study and developed post-construction monitoring plan. 2004-2009.

**For:** Catamount Energy (acquired by Duke Energy in 2008)

**Position:** Principal Investigator

**Description:** Monitoring the species composition, altitude characteristics, and numbers of night-migrating birds for assessing the potential impact at proposed wind energy facilities in Vermont and Pennsylvania 2004-2005.

**For:** Research Planning, Inc. (RPI)

**Position:** Principle Investigator

**Description:** Responsible for avian datagap analysis in the United States Minerals Management Service (MMS) contract "Worldwide Synthesis and Analysis of Existing Information Regarding Environmental Effects of Alternative Energy Uses on the Outer Continental Shelf". 2006-2007.

**Report available at:** [www.boem.gov](http://www.boem.gov) (search for "2007-038")

**For:** Pattern Renewables

**Position:** Principal Investigator

**Description:** Carried out breeding bird surveys, raptor surveys, avian night flight call survey, diurnal bird movement survey, avian risk assessment, and prepared post-construction monitoring plan for the proposed Hounsfield Wind Farm on Galloo Island in northeastern Lake Ontario 2007-2012.

**For:** New York State Energy Research Development Authority (NYSERDA)

**Position:** Principle Investigator

**Description:** Multi-year study investigating nocturnal bird migration through the Maple Ridge Wind Energy project in northern NY. This work was subcontracted through New Jersey Audubon Society. 2007-2012.

**Report available at:** <http://www.nyserda.ny.gov/-/media/Files/Publications/Research/Environmental/Avian-Acoustic-Monitoring-Study-Maple-Ridge.pdf>

**For:** Black Oak Wind Farm LLC

**Position:** Principal Investigator

**Description:** Multi-year study carrying out raptor migration study, breeding bird survey, diurnal bird movement study, avian risk assessment, post-construction monitoring plan. 2010-2012.

**For:** Hudson Energy Development

**Position:** Principal Investigator

**Description:** Study carrying out breeding bird survey, diurnal bird movement study, and avian risk assessment at the proposed Galloo Island Wind Project in northern NY. 2015.

**Wind energy related consultation:**

**For:** State of Vermont

**Wind project:** Proposed wind farm on Little Equinox Mountain, VT

**Description:** Prepared an assessment of the potential hazard to migrant birds.

**For:** Ripley Hawk Watch

**Wind project:** proposed Chautauqua Wind Energy Project (near Ripley, NY)

**Description:** Critically reviewed Draft Environmental Impact statements.

**For:** Alliance to Protect Nantucket Sound

**Wind project:** proposed Cape Wind Farm (Nantucket Sound)

**Description:** Critically reviewed Draft and Final Environmental Impact statements.

**For:** Wolfe Island Residents for the Environment

**Wind Project:** Wolfe Island Wind Project, Wolfe Island, ON

**Description:** Critically reviewed Draft and Final Environmental Impact statements.

**For:** Wind Power Ethics Group

**Wind Project:** St. Lawrence Wind Farm (near Cape Vincent, NY)

**Description:** Critically reviewed Draft and Final Environmental Impact Statement

**Recent accepted invitations to speak at academic conferences**

Ecological Society of America. Pittsburgh, PA 2010. Session titled: Citizen Science to Remote Sensing: Emerging Programs and Methods for Establishing Broad-Scale Phenological Monitoring

Acoustical Society of America. San Francisco, CA 2013. Session titled: Biological contributions to the Soundscape II.

**Current position**

**For:** Old Bird Inc.

**Position:** Executive Director (since 2000)

**Description:** A 501(c)3 nonprofit corporation dedicated to facilitating acoustic monitoring of avian night flight calls. Current focus is developing a continent-wide avian nocturnal flight call monitoring network for research and education. [www.oldbird.org](http://www.oldbird.org)

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