

**27 February 2008**

**To:**

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**From:**

**The New York State Ornithological Association**

**Comments on the**

**Proposed Guidelines for Conducting Bird and Bat Studies at Commercial Wind Energy  
Projects**

The Board of Directors of the New York State Ornithological Association, Inc. (NYSOA) met 9 February, 2008 and voted unanimously to commend the New York State Department of Environmental Conservation (DEC) for its efforts to develop and present a draft of Guidelines for Conducting Bird and Bat Studies at Commercial Wind Energy Projects. NYSOA developed its own guidelines for commercial wind projects, which were approved by the Council of Delegates at our annual meeting in October 2007. We appreciate the major effort required to develop these more extensive guidelines presented by the DEC. On behalf of the 47 member clubs of NYSOA, we are pleased to review and respond to the Proposed Guidelines for Conducting Bird and Bat Studies at Commercial Wind Energy Projects within the comment period of 7 March, 2008.

In the following we provide suggested changes in the broad perspective of the draft guidelines and more detailed descriptions of technical concerns and our recommendations. For comparison, the NYSOA guidelines are appended at the end. One member of the NYSOA executive committee is also a member of Delaware-Otsego Audubon Society and this submission includes extensive comments unique to NYSOA while expanding on material first submitted by the Delaware Otsego organization.

## **Comments of the New York State Ornithological Association in response to the DEC Proposed Guidelines for Conducting Bird and Bat Studies at Commercial Wind Energy Projects**

### **An overview**

The guidelines present a goal of “determining the potential for a specific wind energy project to have an adverse impact on bird and bat resources”. However, the body of the guidelines presents only recommendations and techniques to obtain data. The guidelines fail completely to offer any guidance about how to determine what constitutes an adverse effect. The introduction to the guidelines refers to the environmental damage related to use of fossil fuels and the merit of developing alternative energy sources. Yet the guidelines fail completely to follow up on this excellent beginning since there is nothing subsequent that assesses the potential adverse effect of wind power in the context of our energy mix for the future.

DEC can meet its obligation to New York residents by providing a broad perspective on wildlife mortality related to energy mix for the future and by putting wind mortality in perspective to other anthropogenic sources of mortality and to population stability of wildlife. Without such perspective, numbers acquired by the proposed procedures will encourage popular opposition to wind power without placing the information in an informed perspective.

What is an adverse effect? Would 10 or 10,000 or 100,000 birds killed a year in New York at wind towers result in an “adverse impact”? This is not meant to be a rhetorical question. We know that

towers kill birds and bats. We need to determine if tower mortality is significant and if significant, what the trade-offs with mortality due to other energy sources are. In order to be helpful to local governments, the guidelines must define “adverse”. The expertise of DEC far exceeds that of most local governments and DEC expertise must provide explicit guidance. In the absence of such guidance, we know that public reaction to any mortality at towers is often severe. A typical public reaction was presented in a recent outdoor column in the Syracuse Post Standard where bird mortality at wind towers was described as “calamitous”. Suppose, in some distant future, New York had 5,000 towers each killing 12 birds a year for an annual total of 60,000 (surely near an upper limit). Would 60,000 birds killed a year in New York due to towers be an adverse effect? What is the relative negative effect of 60,000 small land birds killed by towers in New York when game bird populations survive a mortality of 120,000,000 killed annually due to hunting in the U.S? Both the American Bird Conservancy and the National Wildlife Foundation have endorsed a study that predicts a net loss of 30 species of birds that breed in New York within 50 years unless our energy trends are significantly changed. Should the DEC release guidelines that lead to popular opposition to wind turbines because 60,000 birds would be killed annually? Or, should the DEC develop guidelines that compare the significance of that adverse effect to the effect of continuing to expand our current mix of energy sources, which may lead to the net loss of 30 breeding species in New York? Implementation of the existing guidelines would provide only negative information about wind tower effects. That will lead many local governments to recommend that towers that would kill 60,000 birds should be prohibited.

The techniques for data acquisition suggested in these guidelines are inadequate and in some cases are incorrect. Noteworthy, the suggested dates for monitoring hawk migration are inappropriate and the intensity of monitoring for land bird migration is so inadequate that resulting data will do more harm than good. The method recommended for estimating breeding bird densities makes a fundamental error. The USGS protocol as used with the Breeding Bird Survey provides an index count of birds but it is not a census that provides actual numbers of breeding birds. Throughout the proposed guidelines, there is not a single reference to statistical validation of any of the numbers. Surveys without confidence intervals do not give answers. This omission makes the resultant data more amenable to public distortion than to reasoned decisions.

Although the guidelines propose survey techniques that in several cases are insufficient to provide accurate data, the recommendations will still be expensive in time and money. Many of the procedures involve sampling that are recently developed and are still under assessment. Application of results based on techniques, about which we may know very little or do not know their statistical limitations, should be applied judiciously but may very well be taken at face value by the public.

It is not necessary to ask that every facility manager do everything. One basic suggestion for redesigning the proposal is to reconsider what must be done for all sites and what could be done in sufficient detail to resolve environmental concerns if conducted at just a few sites.

While NYSOA recognizes the need for developing these guidelines, there are major problems with this document. The errors are so fundamental that a revision requires a fundamentally different approach to truly assess the damage to wildlife and to develop appropriate monitoring protocols. NYSOA suggests that DEC hire a panel of outside experts to rewrite these draft guidelines with the goal of providing ecologically meaningful protection for wildlife based on a sound statistical basis assessed in the context of all the other energy-related stresses to our environment.

## **Details of comments by NYSOA**

### **Wintering Bird Surveys should be standard.**

The draft guidelines only suggest wintering bird surveys for projects “that contain or are near a location known to harbor significant numbers of wintering birds.” While an effort has been made to survey the whole state for breeding birds, relatively little is known about winter avifauna in much of New York. The burden needs to be on the developer to show that an area does not harbor significant numbers of wintering birds.

*Winter bird surveys should be standard for pre-construction analyses unless there is clear documentation of the absence of significant numbers of wintering birds for the proposed site.*

## **Two Years of Standard Pre-construction Surveys are needed, even more so in winter.**

The guidelines state a minimum of one year of pre-construction studies is “recommended” at all proposed wind energy projects. The use of an area by birds varies from one year to the next based on factors such as food availability and weather. Winter raptor populations often have irruption years whereby abundance increases greatly once out of several years. This is partially due to localized, extreme annual variation in voles and other small mammals, which are the prey of most raptors, and the presence of deep or crusted snow in one location but not another. One season of standard pre-construction surveys is insufficient to detect irruptive abundance of raptors, such as the Northern Harrier and Short-eared Owl that are listed as Threatened or Endangered, respectively.

*The necessity of conducting 2 years of standard Wintering Bird Surveys cannot be underestimated and these studies should be “required” not “recommended.” Surveyors conducting these winter surveys should record data on snow condition and depth which both affect the use of an area by birds.*

## **Is the NY Natural Heritage Program database up to date?**

The NY Natural Heritage Program database is cited as a source of information. A database data entry backlog that existed as recently as 2006 compromised the accuracy of this source. Does this problem still exist? If so, how can DEC assure that developers are given all pertinent information?

## **Other sources for compiling existing information on bird resources.**

In addition to sources noted in the section on sources of information on bird resources, eBird ([www.ebird.org/NY](http://www.ebird.org/NY)) and regional bird listserv and discussion group archives should be searched for rare or significant bird reports in or near the project. Regional listserv and discussion group addresses can be found at NYSOA's website - [www.nybirds.org/](http://www.nybirds.org/). Listservs are often not archived and should be used only in addition to the other sources. Data from 100 years of the National Audubon Society's Christmas Bird Count is on line and should be surveyed. Relevant hawk migration data may be available from the Hawk Migration Association of North America (HMANA).

## **The amount of raptor migration surveys needed is not clearly stated.**

The raptor migration survey recommendation of “at least 10 days during the predicted peak migration times for targeted species” is ambiguous. We do not know if this means 10 days of surveys in a year, 10 days during the spring and another 10 days in the fall, or, 10 days during the peak of each targeted species' migration in both spring and fall.

## **Comparing projects' raptor migration surveys to existing hawk watch sites.**

Avian Impact Assessments sometimes compare raptor migration surveys from wind project sites with nearby hawk watches. When data analyses compare project sites to established hawk watch sites, they should include consideration of the number of observers at each site, the training and skill of the observers, and how those factors could affect the analyses. The number of observers and their skill level has an affect on the number of raptors seen and recorded. For hawk watch sites, the experience of observers is not publicized. However, information on counter experience, and the vetting requirements for any hawk watch, can be requested from hawk count site compilers. The number of observers contributing to a count can be found in the hawkcount.org database.

## **The dates of raptor migration surveys must be adjusted.**

Raptor migration depends greatly on the passage of weather fronts. Although inappropriate wind directions can predict when hawks will not migrate, appropriate wind directions alone do not predict when hawks will migrate. Since hawk migration is typified by extremes of a few good days and many mediocre to poor days and since the good days are extremely difficult to predict, hawk migration can not be monitored by “10 days during the peak migration times for targeted species.”

Different species have peak migration times that are about two months apart. Monitoring must be sufficient to document major but sporadic movements that peak at poorly predicted times over a three month period.

The recommended “*spring and fall migration periods (April 1 to end of May; August 15 to November 1)*” need to be changed. The fall date range ends too soon. It does not include the peak season for Golden Eagle and would end during the peak of Red-tailed Hawk flight. Fall observations need to be conducted until at least November 15. November 30 would be a better date. Continuing fall surveys into mid-December if Golden Eagles are observed appears to be a reasonable approach as long as surveys continue to November 15 or later. Most fall Golden Eagles are recorded after October.

The spring count dates start too late for all but two species. From 2003 to 2007 at the Derby Hill Bird Observatory, 64% of all spring migrants that were not Broad-winged Hawks or Turkey Vultures, passed the site by the end of March. Spring surveys at any site need to start early enough to count the majority of individuals of most species. The current guideline dates cannot do this.

*Spring surveys need to begin on March 1. This is essential to assess the spring migration of all 13 species seen fairly regularly at New York hawk migration monitoring sites. . It is especially important to begin surveys on March 1 for the NYS Endangered Golden Eagle, an early spring migrant.*

## **Post construction studies may need to be extended into winter.**

Since foraging raptors are known to be vulnerable to blade impacts, if wintering bird surveys determine that a significant number of raptors or other species of concern use the site during that season, post-construction studies need to extend into winter. This should include mortality surveys, and bird habituation and avoidance studies.

## **Off-shore wind projects not covered in document.**

The draft guidelines appear to refer only to on-shore wind projects. Off-shore projects have been proposed in NY State and others may follow. These have their own set of threats to bat and bird resources. Unless a separate set of guidelines are intended for these projects, these should be expanded to include off-shore projects.

## **Geographic areas of concern need to be expanded.**

The guidelines refer to the Atlantic coast and the shorelines of the Great Lakes as areas of concern. Other areas of the state also warrant similar concern, and should be included in this list. The NYSOA guidelines, developed after extensive input from experienced birders around the state, recommend inclusion of the Finger Lakes, the Hudson River valley, the Susquehanna River valley, Chautauqua Lake and Lake Champlain.

## **Survey periods for migratory songbirds inadequate.**

The guidelines call for weekly songbird migration surveys as part of the pre-construction regime. This is inadequate to accurately assess the presence of migrants, as the timing of movements of these birds is highly variable, and not always clearly predicted by weather patterns. It would be easy to miss a significant flight of migrant songbirds using this schedule. Some research workers who have used radar to study bird migration have reported that over half of the migrants fly on two or three nights of the entire migratory period, depending on the passage of weather fronts. The movement of great numbers of birds on just a few nights of the entire migratory season can not be monitored by observations “once per week during the months of May and September.”

This is a particular concern if radar studies of migrants are not required at a site. The guidelines would be strengthened by recommending radar monitoring for all projects, as is the current practice at wind sites in NY State.

*Surveys should be extended over a two month period and must be conducted on every night when a weather front favorable for migration is predicted to pass through the region.*

## **Public disclosure and peer review of work plans and studies needed.**

Data on migratory movements of birds or bats and mortality at wind towers does not impinge on proprietary matters such as inventions or the potential wind energy at the site. Data on wildlife mortality involves a public resource whose protection is a public concern. The public has the right to be involved in assessment of wildlife data at towers.

The guidelines must require that results of studies carried out by developers and the recommendations from DEC to wind developers are provided to the public. This information must be made available at such a time that public input can proactively help develop final recommendations.

*It is crucial that the guidelines require that the data must be made available to the public with sufficient time to allow outside examiners to prepare comments prior to decision by the lead agency regarding a proposed facility. The guidelines should also strongly recommend establishment of an independent peer review panel to consider recommendations, work plans and studies.*

## **Standard Post-construction studies.**

Singing frequency by breeding birds declines rapidly after incubation is initiated. Most breeding bird surveys, including the USGS protocol for the Breeding Bird Survey, rely primarily on detection of singing birds. The abundance of nesting birds will be severely underestimated if counts are taken after incubation starts.

*Breeding bird surveys in southern New York must start by early to mid-May, ~10-15 May. Surveys in northern New York and/or at significantly higher elevations may start in late May, ~25 May.*

Surveys of point count efficiencies (see reports in Ralph, C. J., J. R. Sauer, S. Droege, technical editors. 1995. Monitoring Bird Populations by Point Counts. Gen. Tech. Rep. PSW-GTR-149. Alban, CA: Pacific Southwest Research Station, Forest Service, USDA; 187 p) document that two census trips are inadequate. Population estimates based on two trips would be misleading. For example, Cry et al. report that 2, 3-min point counts detected only about 25% of the breeding pairs in fixed-area census area. Five-min counts detect a higher percentage of those present but even two 5-min counts will detect only about 60-70% of those present, if conducted during the season of highest frequency of singing, or less, if conducted when singing declines.

The USGS method used for the Breeding Bird Survey (BBS) is inappropriate for determining the number of breeding bird pairs. BBS data is an index count, and is used to determine changes in abundance by comparison across years. It is not a census technique. Simply recording the number of birds identified during each of two visits to a site does not tell you how many different birds were there.

Spot-mapping of the location of birds gives you the opportunity to map the song perches used and the ability to distinguish birds that sing on one visit from near a nest in one location from a different bird that sings near a different nest at another location on a different visit. Spot-mapping is usually compiled based on 8 to 10 and up to 12 visits (Verner and Milne, 1990. Analyst and Observer Variability in Density Estimates from Spot Mapping. Conder 92:313-325.)

*Census data for tower sites must be based on a protocol that attempts to conduct 7 spot mapping trips during the peak of bird territorial singing, but accepts that unpredictable events occur during field studies and that occasional sites that were surveyed on only five dates are acceptable.*

*Census data must include seven trips to detect crepuscular or nocturnal birds as well as seven trips to detect birds that become most active around dawn.*

*There is little point in conducting meaningful, pre-construction surveys of breeding birds without conducting the same surveys post-construction. We must determine if the towers have any effect on breeding birds by a comparison of post-construction data collected by the same techniques.*

## **Standard Post-construction studies.**

Surveys of carcasses at weekly intervals are inadequate. The longer a carcass remains uncounted, the greater the chance a carcass will not be detected for several reasons. The proportion of carcasses

removed by scavenging increases as the elapsed time between searches increases. However, the temporal pattern of scavenging following death is poorly understood and certainly not modeled by assuming a constant rate of disappearance.

In addition to scavenging, carcasses are effectively removed by mowing. The grass at survey sites must be mowed fairly frequently to allow searches to see carcasses that would otherwise become hidden in tall herbs. Yet, mowing almost always results in the total disintegration of carcasses and makes them virtually undetectable.

*Mowing must be scheduled to follow searches but on the same day as the search.*

Furthermore, carcasses become significantly less visible over a few days time. In periods of rapid grass growth, carcasses can be hidden from vision to a significant degree by a few days of growth of the grass and weeds. Further, carcasses become shriveled as they become desiccated and are partially decomposed by insects and bacteria. Such shriveled carcasses are smaller and become gradually deeper embedded in the vegetation and much harder to see several days after death than the morning after death.

Without daily counts, one must extrapolate from the number of carcasses found to estimate the number actually killed. This requires correction of a small number of observed kills by several correction factors each adding to the unreliability of the final estimate. Corrections factors should include the number for those that are scavenged, the number missed by the observer, the number mowed, and the number hidden by growing grass. Statistical confidence intervals on the original small numbers are low and adjustment and extrapolation makes the final estimate even more unreliable.

*Carcass counts that will be used to estimate mortality must be taken at daily intervals to provide meaningful data.*

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## NEW YORK STATE ORNITHOLOGICAL ASSOCIATION

### POSITION ON WIND POWER DEVELOPMENT

**As approved by the NY State Ornithological Association Council of Delegates at the annual, stated meeting on 6 October, 2007.**

The New York State Ornithological Assoc., Inc. (NYSOA) supports development of renewable resources to provide energy in NY State, and beyond. Continued dependence on fossil fuels and nuclear power carries with it serious environmental consequences including air and water pollution, toxic waste, habitat degradation and loss, and many threats associated with global warming. These negative consequences impact birds in NY and elsewhere. Wind energy facilities that are sited appropriately provide an alternative that is less harmful than fossil fuel and nuclear generation to birds, humans and our environment.

However, all methods of energy production, even those using renewable resources, do have some environmental impacts. The greatest concern to NYSOA for wind power is inappropriate siting and the consequent impact from wind turbine blades and towers on wildlife and the potential degradation or fragmentation of habitats by access roads and the towers themselves.

NYSOA recognizes that the cumulative impact of more than one wind power facility in one area poses an environmental threat that may far exceed the impact of an individual facility and that the cumulative impact of a series of wind power facilities along a topographic feature that is used as a migratory route may be severe. NYSOA sees a great need for predictive models of wildlife mortality and development of objective criteria that apply predictions from such models to determine if a site is suitable or not. NYSOA recommends that wildlife monitoring data be subject to external review by scientists unassociated with the wind industry, and that the data be placed in the public domain before a siting review is initiated so citizen participation in the review process is reasonably possible.

To minimize damage to wildlife and address these broad concerns, NYSOA recommends the following.

A full, draft assessment of the impact on wildlife, including especially birds and bats must be prepared and submitted by the proposer for review by the appropriate agencies.

The full, draft assessment must provide an analysis of the cumulative environmental impact due to existing, proposed and reasonably foreseeable energy-related proposals for an area or migratory pathway.

The review agencies must be given the authority to reject an individual proposal if the cumulative effects of several facilities in an ecologically connected area are viewed as too severe.

The assessment should determine the presence or absence of state or federally listed threatened or endangered species or species of special conservation concern that reside at or near the site for an appreciable portion of the year and determine how those species would be affected by the proposed project.

The assessment must include thorough surveys of nesting birds, with particular emphasis on those species at risk, and those species utilizing flight displays that may increase the likelihood of collisions. Surveys of wintering birds must be conducted to assess use of the area by raptors, which may hunt in open areas near wind turbines.

Ridges and shorelines, which are closely followed by some species during migration, are frequently also considered for wind power development. The risks to birds from wind projects at these locations are so high that they should be avoided completely unless it is demonstrated conclusively that minimal concentration of birds exists at proposed sites. In those locations where there is good reason to suspect there may be a seasonal concentrations of birds, no less than three years of full-time surveys the critical seasons with appropriate peer review, should be considered adequate to document the absence or low frequency of such concentrations. These locations include: areas within 2 miles of the shorelines of Lakes Erie, Ontario, and Champlain; barrier beaches and other shoreline areas on Long Island; offshore areas within 2 miles of land in Long Island Sound and the Atlantic Ocean; known migratory routes along ridges and valleys including the lower Hudson River Valley, the Susquehanna River Valley, the St. Lawrence River Valley, the Finger Lakes, and the Shawangunk Ridge. Other areas may also support significant, seasonal concentrations of birds, particularly areas that are known locally but have not been recognized statewide, and should likewise be avoided.

The agencies must have the authority to reject the assessment on the basis of insufficient or inadequate data.

The draft, full assessment should be provided to the public in such a time and manner that the public has sufficient time to submit an external review to the appropriate agency or agencies prior to the approval by the agencies.

At a minimum, any project's approval should be contingent on the developer and operator following the most current version of the U.S. Fish and Wildlife Service's recommendations for reducing risk and avoiding bird collisions with towers.

The agencies must certify that the data is sufficient and collected in an appropriate manner.

Post-construction studies of aerial movement of wildlife and mortality rates must be continued and the results readily accessible in the public domain. Approved wind power facilities must provide financial support sufficient to fund several efforts to develop predictive models of mortality using the collective data from all wind power sites.

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