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**Mount, Gail**

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**From:** Smalling, Curtis [CSMALLING@audubon.org]  
**Sent:** Monday, December 09, 2013 5:04 PM  
**To:** Statements  
**Subject:** Comments on Docket SP-3085 Sub 0  
**Attachments:** TorchWindfinal.doc

**FILED**

**DEC 09 2013**

Clerk's Office  
N.C. Utilities Commission

Dear Sir,

Please accept Audubon North Carolina's comments regarding Torch Renewable Energy LLC's Application for Public Convenience and Necessity Docket SP3085 Sub 0. We look forward to any public hearings on this Issue. I am available for any clarifications on our comments. Thank you.

Curtis Smalling  
Director of Land Bird Conservation  
Audubon North Carolina  
667 George Moretz Lane  
Boone, NC 28607  
828-265-0198  
[csmalling@audubon.org](mailto:csmalling@audubon.org)

Support the birds you love by joining our Cardinal Club today!

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Dec 09 2013



# Audubon NORTH CAROLINA

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December 9, 2013

Chief Clerk  
N.C. Utilities Commission  
4325 Mail Service Center  
Raleigh, NC 27699-4325  
Project: Torch Mill Pond Wind Farm SP-3085 Sub 0

To Whom It May Concern,

Please accept the attached comments on the Torch Renewable Energy LLC Application for a Certificate of Public Convenience and Necessity to Construct a Wind Facility of up to 80MW & Petition for Registration Statement dated 10/25/13 (Docket No. SP-3085 Sub 0). We are concerned that any project with the potential to impact this many birds in or near one of our Important Bird Areas needs to show extremely high due diligence in pre-construction study, mitigation and adaptive management plans, and willingness to share data and issues in an open way including post construction operation and monitoring.

As you can see from our comments, there are many issues associated with construction of a wind facility in this sensitive area and the original documents filed with the Commission by Torch Renewable Energy do not adequately address many of these concerns.

Thank you for your time and attention to his matter.

Sincerely,

Curtis Smalling  
Director of Land Bird Conservation  
Audubon North Carolina



# Audubon NORTH CAROLINA

## Mill Pond Project Comments

### Overview

Both the National Audubon Society and Audubon North Carolina have adopted wind energy policy statements that support the development of responsibly sited wind energy projects in the United States and North Carolina. These policy statements are available at <http://policy.audubon.org/wind-power-overview-0> and <http://nc.audubon.org/audubon-north-carolina-wind-power-development-position>.

Commercial wind has the potential to have impacts on birds through direct mortality (collisions), habitat loss from construction and connection to the electrical grid, habitat exclusion as birds avoid areas with turbines (which can reduce available breeding, foraging, or migratory habitats and pathways), and the cumulative effects of these factors at a landscape scale (wind resources tend to be clustered near certain geographic features like ridge lines or coast lines and so projects also tend to be clustered in these areas).

The current proposal from Torch Renewable Energy LLC (Mill Pond Wind Farm) is to construct a commercial wind development in Carteret County, North Carolina encompassing some 7363 acres in Carteret County near the town of Newport. The project would include approximately 49 turbines capable of generating about 80 megawatts of power. Construction is anticipated to begin in 2015 with production of electricity beginning by December 2015. Full details from Torch Renewable Energy LLC's Application for Public Convenience and Necessity before the Utilities Commission are available on-line and are referenced as Docket SP-3085 Sub 0.

**Project Evaluation** – each proposed commercial project is evaluated by Audubon North Carolina on the following 5 criteria as they relate to birds

- 1) Proximity to Important Bird Areas (IBA) – is the project within an IBA? If not, does it include critical foraging habitat adjacent to an IBA? Does it lie between IBAs that share birds? (An example might be Pocosin Lakes and Mattamuskeet that often have daily movements of wintering waterfowl.)
- 2) Habitat Loss – will the project result in a loss of habitat, either for breeding, migration, or wintering? Is there a plan in place to mitigate those losses?
- 3) Habitat Exclusion – will the project exclude suitable habitat from breeding, foraging, or roosting habitat due to habituation, avoidance, or disturbance of priority species? Is there a plan for mitigation of this effect?
- 4) Rigor of Data Collection and Analysis – does the project make a thorough use of existing data? What are the species present and their conservation ranking and relative or absolute abundance (if known)? What is the plan for pre and post construction study and monitoring? Does it conform to widely used methods and best practices? Does the study plan cover the entire annual cycle of birds in the project area? Is that study based on the USFWS voluntary guidelines for siting study and evaluation or near equivalent? Is that data open and available for

outside review and evaluation, especially post construction, so that future projects can learn from existing projects?

- 5) Cumulative Impacts – what are the suspected cumulative impacts from the project on bird populations, habitat availability, connectivity, etc? Are there plans for expansion of the project in later years should it prove economically viable?

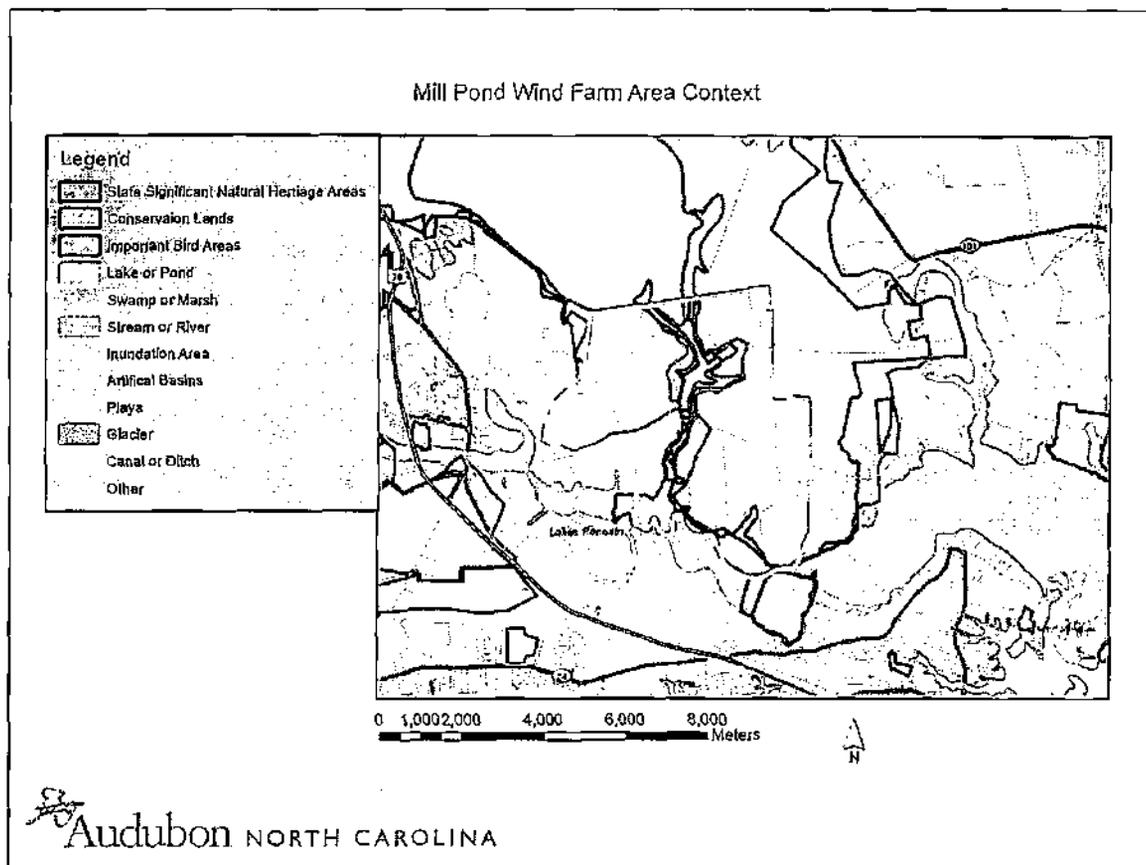
#### **Proximity to IBAs –**

The Mill Pond Wind Farm lies mostly within the Croatan National Forest Important Bird Area (5800 acres of the total project area of 7363 acres). This globally significant IBA hosts a wide array of land bird species including the federally endangered Red-cockaded Woodpecker, and other high conservation priority species like Bachman's Sparrow and Prairie Warbler. The wetlands embedded in the project area also support a variety of wetland dependent species like Bald Eagles, wintering waterfowl, and a variety of high priority marsh birds like Black Rail, Virginia Rail, and other species.

Most of the area is currently private industrial forest land in varying seral stages. This mosaic of habitats from recently cleared to 20-30 year old row planted pines does host a variety of bird species, but many of the species utilizing these forests for breeding and wintering are likely to be more common species known to use plantation pine (DeGraaf, 1978; Rudolph and Conner, 1994; White et al., 1996)

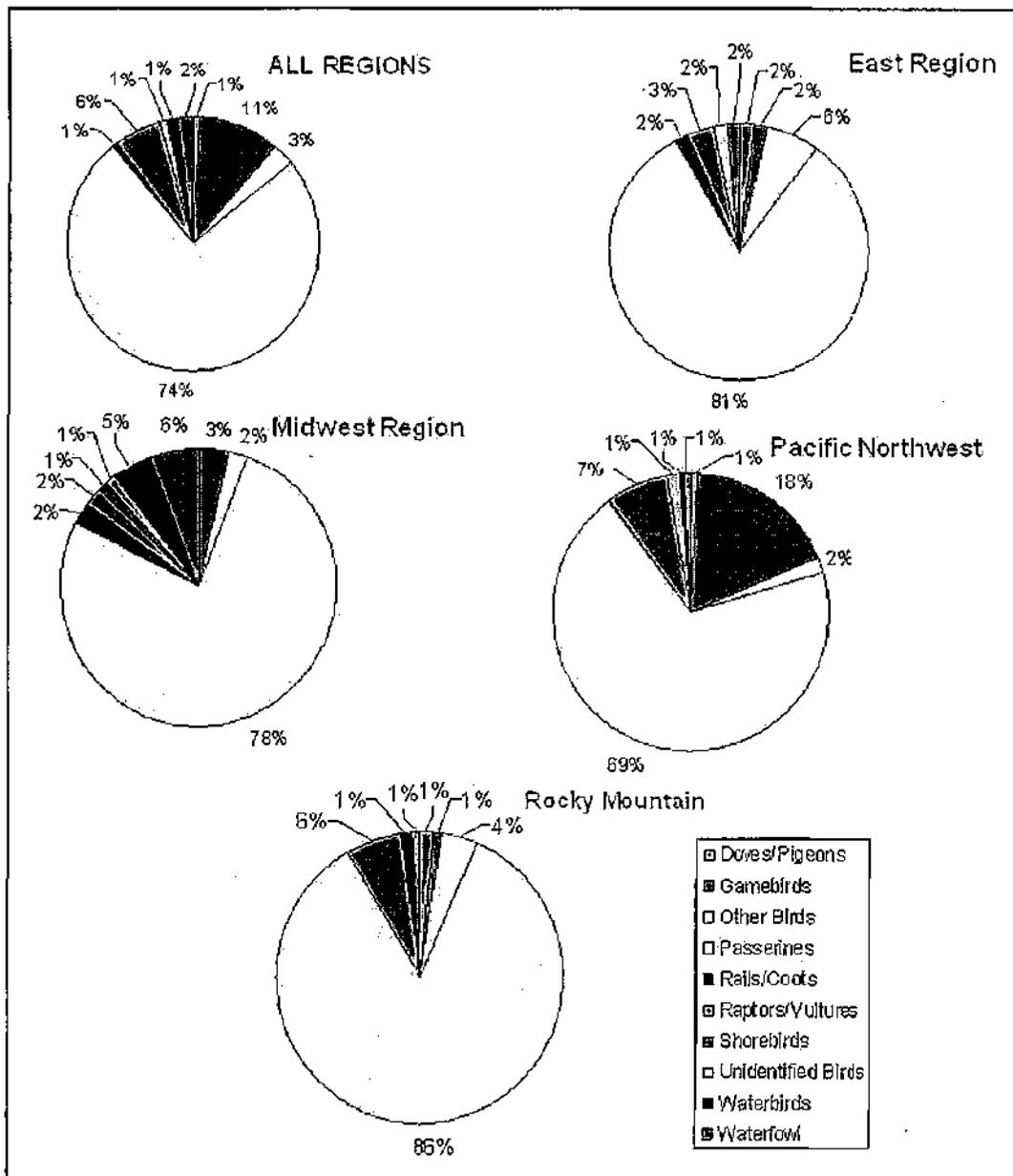
Any embedded agricultural areas and newly cleared forest stands likely host a wide variety of species as well. In a study of bird usage in agricultural fields north of the project area and Pamlico River on the Albemarle-Pamlico peninsula in 2003 (Smalling, unpublished data), bird usage was higher than anticipated, but still differed significantly from a reference site that included managed impoundments and natural wetlands (about one fourth of the total number of birds per point but still very high at over 340 birds per 10 minute count.) Ebird reports for the Croatan Forest IBA report 206 species seen in the area. (eBird data retrieved 12.3.13 from [www.ebird.org](http://www.ebird.org) )

An important factor in evaluating the bird usage of an area is the species using the air space that includes the rotor swept area. In the study referenced above by Smalling (2003), over half of the species encountered used the air space including the rotor swept area. Certain taxonomic groups used these heights more frequently than others and this group included waterfowl, shorebirds, raptors, and gulls. As many wetlands and rivers occur on or near the proposed site, these high risk species are likely to be common.



**Figure 1 – Local Landscape Context of the Mill Pond Wind Farm (approximate project area in yellow)**

The proposed wind farm project area is largely embedded within the Coratan Forest IBA, includes two identified State Significant Natural Areas and high quality wetlands. While there are tens of thousands of individual waterfowl in the larger eastern NC region, waterfowl usage of open water and extensive agricultural fields will likely be just outside of the project area. This does not mean that migrant and wintering flocks do not overfly this area however. Past studies across the United States and elsewhere have shown little direct mortality impacts to waterfowl as a group (Kingsley and Whittum, 2005; National Academy of Sciences, 2007). This is thought to be due to habituation and detection of turbine fields (Pettersson, 2011), but on a broad scale, could also be attributable to a lack of turbines in high quality waterfowl habitats. Figure 2 below summarizes mortality by guild of bird species and region of the United States. As more projects are built in and adjacent to heavily used wetland areas and waterfowl foraging sites, those percentages may change. A hint of that is already visible in the increased percentage of fatalities in the Midwest (about 6%) compared to other regions (about 2%) as some projects in the upper Midwest are in areas utilized by more waterfowl. (More problematic than direct mortality is the exclusion of foraging areas from productive use by these wintering species. This is discussed more fully below in the habitat exclusion summary.)

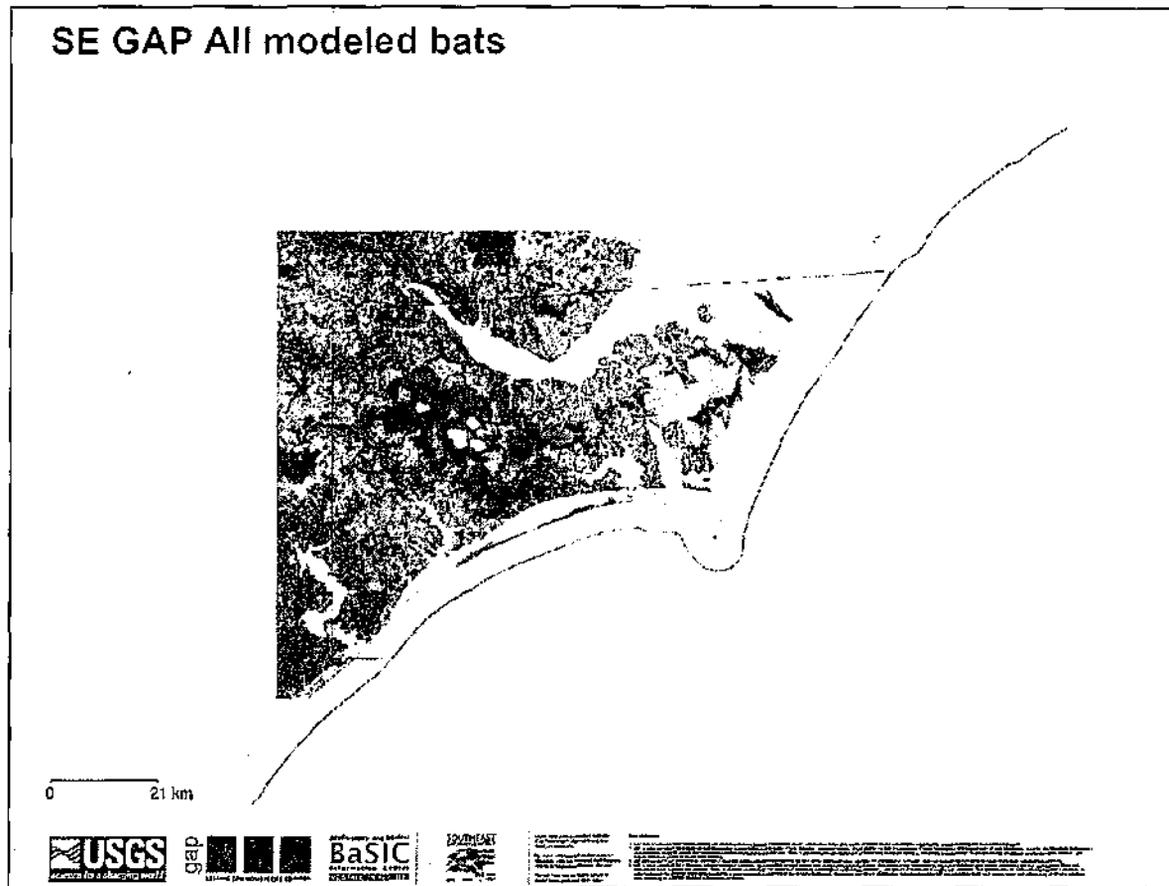


**FIGURE 2** From National Academy of Sciences Report 2007, p. 56  
*Composition of bird fatalities at 14 wind-energy facilities in the United States.*  
 Sources: Compiled by committee from Erickson et al. 2000, 2003b, 2004; Young et al. 2001, 2003b, 2005; Howe et al. 2002; Johnson et al. 2002, 2003b; Nicholson 2003; Kerns and Kerlinger 2004; Koford et al. 2004. Light blue represents passerine species

While wintering waterfowl are a primary concern in the entire coastal region of North Carolina, the proximity of the project area to the large open water of the Neuse River to the north and the smaller Newport River to the southeast and Bogue Sound to the south suggests that landbird migrants may at times occur in high numbers during migratory periods. Many landbirds avoid crossing large bodies of water and so “pile up” as they wait for conducive winds to assist in crossing, or by the same token, land after crossing to rest and refuel (Moore, 2000). While we have little data from this project area, it is

important to understand these dynamics, as most mortality at eastern wind energy sites have been from nocturnal migrant passerines (Strickland et al, 2011). Kunz et al (2007) provide a comprehensive overview of methods for monitoring the nocturnal usage of wind project areas by birds and bats.

Bats too are a concern and much recent research has been focused on bats in the eastern United States (Proceedings of the Wind Energy and Bird/Bat Workshop, 2004; Arnett et al, 2008; Cryan, 2008; Strickland et al, 2011);. Other research has begun to address possible mitigation and operational adaptation to lessen bat mortality, including reducing so called "cut in speed" or the wind speed required to begin power generation, which has been shown to reduce mortality by up to 60% at one site (Baerwald et al, 2009). Of possible concern in the current project area is the affinity for locally abundant bat species to forage along forest edges, which are more common in this region (Morris et al, 2010). This study was conducted north of the project area near Plymouth, North Carolina and detected some species that have been common species killed at other eastern wind energy installations [Hoary Bat (*Lasiurus cinereus*), Eastern Red Bat (*Lasiurus borealis*), Big Brown Bat (*Eptesicus fuscus*)]. Figure 3 was generated from the Southeast GAP on-line tool (available at <http://basic.ncsu.edu/segap/>) and is based on predicted distribution using a habitat suitability model for several species of bats including the following: Brazilian free-tailed bat (*Tadarida brasiliensis*); Eastern pipistrelle (*Pipistrellus subflavus*); Evening bat (*Nycticeius humeralis*); Seminole bat (*Lasiurus seminolus*); Northern yellow bat (*Lasiurus intermedius*); Eastern red bat (*Lasiurus borealis*); Silver-haired bat (*Lasionycteris noctivagans*); Big brown bat (*Eptesicus fuscus*); Rafinesque's big-eared bat (*Corynorhinus rafinesquii*).



**Figure 3 – Predicted Bat richness for the Mill Pond Project Area from SE GAP on-line tool. Generated 12/9/13 using species listed above.**

**Habitat Loss –**

The application for this project does not include any information regarding the continuation of forestry on this project area or if areas will be converted to agricultural lands around turbine installations. This project, if constructed entirely within existing industrial forest lands that continue to be harvested on a historically similar rotation, will likely have minimal direct habitat loss impacts, and those should be limited to the area surrounding the pads for the turbines. Habitat impacts should be limited to road bed improvements, turbine pad construction and grid connectivity and maintenance facilities on-site. The plan as presented in the Application for Public Convenience and Necessity shows connectivity to the existing electrical grid is indicated to be on-site and so transmission issues above ground should be limited to what appears in the application to be approximately 2 miles of above ground transmission.

### **Habitat Exclusion –**

There are very few studies that look at passerine response to wind farms outside of the agricultural context. If the project area is to remain working forest, then much needs to be learned about this system and the impact of wind power on habitat usage. Many studies suggest that waterfowl habituate or avoid turbine arrays while moving between foraging areas or during migration (Kingsley and Whittam, 2005; Pettersson, 2011). If this is the case, the large area covered by this installation could be made unavailable to foraging flocks. The literature suggests that this may vary according to species however (Powlesland, 2009). Other groups of birds (gulls, raptors, shorebirds) may be at risk as well but the literature is inconclusive at best about risk of mortality or exclusion and habituation in these other groups (Kingsley and Whittam, 2005; Powlesland, 2009). Raptors in western settings have shown mixed responses, in some cases more inclined to utilize areas with land management schemes favoring small mammal populations (Smallwood and Thelander, 2004) and habituating in others to avoid turbines (Sharp et al, 2010). There is still much to learn about other groups (gulls, shorebirds, wading birds) that regularly use agricultural areas (Kingsley and Whittam, 2005; Brennan, et al, 2010; Blackman, 2011), although exclusion of habitats for some grasslands birds is well documented (Horton, 2010; but see Devereaux, 2008).

Much of the bird usage of the timber lands in the project area is directly tied to harvest history, current planting regime, and soil condition (Rottenborn, 1996; Smalling, 2003). This fact leads to possibilities for mitigation off site or operational adaptive management to influence bird usage within the turbine array. Stands adjacent and within the project area could be adaptively managed to discourage use by sensitive species, once detailed analysis of risk and seasonal movements are understood. Many sources provide guidance to existing approaches for a variety of adaptive management and mitigation measures (Kingsley and Whittam, 2005; Environment Canada, 2007; National Academy of Science, 2007; PNWWRM VII, 2011; Strickland et al, 2011; USFWS, 2011) however none of these address largely working forest landscapes for breeders and resident birds. The proximity of the site to wetlands and open water make it imperative that these closely associated areas are considered in surveys, adaptive management or mitigation..

### **Rigor of Data Collection and Analysis –**

The Application for Public Convenience and Necessity does not include details of the methods of data collection being used for pre-construction study of the Mill Pond Wind Farm project.

It is our recommendation that all currently available data be reviewed (including a list of sources provided by Audubon in Appendix 1) and that standard methods are used for pre- and post-construction study (USFWS, 2011b; Strickland et al, 2011). Publicly available Department of Defense materials (AHAS and BAM modeling) and data prepared for the proposed outlying landing field near the project area should also be consulted and included in the analysis (Netti et al, 2007). This data includes radar, aerial surveys, and

wintering waterfowl surveys for an extended period of time over several years and is one of the best data sets for eastern North Carolina and bird usage and timing.

It is also preferred that data sharing occur and that results of newly completed surveys not be sequestered by the developer. This is especially true of post construction monitoring data as this is the single best source to evaluate cumulative impacts, efficacy of adaptation and mitigation strategies, and operational impacts.

### **Cumulative Impacts**

This is a difficult measurement to obtain or model given the lack of data, small number of projects, and variables present. However, basic guidance regarding cumulative impact analysis and theoretical thinking can be found in the National Academy Report on wind energy impacts (Environment Canada, 2007; National Academy of Science, 2007). In general the two factors most often considered in cumulative effects are: 1) any population level impacts of wind energy development in a specific region and the thresholds for creating a population level impact through direct mortality or lower survival rates or productivity and 2) the habitat thresholds for altering the bird communities in the region through exclusion or avoidance. While these are currently difficult to assess, there are projects underway that attempt to model these impacts (see Strickland et al, 2011).

There are concerns more broadly for the Lower Neuse region regarding the loss of forests. Recent reported losses at the Atlas Farm Project, Hoffman Forest, and defoliation and herbicide use at Camp Lejeune have the potential to contribute to the loss of tens of thousands of forested acres to agriculture or other uses. This amount of loss in one river drainage would be detrimental to forest dwelling species and serve to further isolate populations of Red-cockaded Woodpecker and other forest interior species including other taxa as well as birds. The future land use planned for the project would be critical in determining possible cumulative impacts.

### **Recommendations**

- 1) Prepare and share with regulatory and interested parties the plan for pre-construction surveys for suspected problematic species at a minimum to include Red-cockaded Woodpecker, Bald Eagle, and migrant passerine use of the project area. These surveys should conform to accepted practices outlined in the USFWS Voluntary Guidance (USFWS, 2011b).
- 2) Continue to utilize the framework of the USFWS service voluntary guidance for siting of wind energy projects including Tier 5 research projects if Red-cockaded Woodpecker, waterfowl, or Bald Eagle usage appear problematic, and to commit to adoption of a avian and bat protection plan (USFWS, 2011b).
- 3) Continue to utilize the framework of the USFWS Draft Eagle Conservation Plan Guidance document, including completion of an eagle conservation plan for the project (USFWS, 2011a).

- 4) All currently available data be reviewed (including a list of sources provided by Audubon in Appendix 1 and that standard methods are used for pre- and post-construction study (USFWS, 2011; Strickland et al, 2011).
- 5) It is also preferred that data sharing occur and that results of surveys not be sequestered by the developer. This is especially true of post construction monitoring data as this is the single best source to evaluate cumulative impacts, efficacy of adaptation and mitigation strategies, and operational impacts.
- 6) If abnormal or significant weather events occur during the survey and evaluation period (nor'easters, snowfall, etc), to monitor bird usage during and immediately after such events, even if out of the normal monitoring rotation.
- 7) Inventory and monitor bat usage of the proposed project area, and commit to adaptive strategies like changing cut-in speeds during migratory periods.
- 8) Establish a plan for operational adaptation to conditions on the ground which are likely to vary between and within seasons and years including disruption of generation if necessary, management of fields and timber stands immediately adjacent to the turbines, and other necessary adaptive measures.
- 9) Consider mitigation of habitat excluded from use by waterfowl, shorebirds, and other birds in the project area by supporting permanent protection and or management of additional parcels in proximity to the Croatan National Forest.

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**Appendix 1**– Relevant avian data sets available for review for the Albemarle Pamlico region

**Audubon North Carolina  
Wind/Bird Data Resources for Northeastern North Carolina**

The following is meant to summarize available data for use by developers and communities interested in wind development at a commercial scale in the northeastern portion of North Carolina: This summary of available data and resources is not intended to replace assessments on the ground in areas slated for potential development by developers and communities.

Many of these resources are interactive and continually updated so are not meant to be treated as static resources. Also, please check with individual providers for data disclaimers, publication policies, permission for use, and other specific instructions regarding use of the data or GIS layers.

**Data Layers for Mapping**

1) One of the single best sources for layers regarding various aspects of environmental mapping can be found at the website for the NC One Project ([www.nconemap.net](http://www.nconemap.net)) This website provides access for a variety of mapping layers including such layers as:

- North Carolina Natural Heritage Program Element Occurrence Data
- North Carolina Natural Heritage Program Significant Natural Areas
- North Carolina Wildlife Resources Commission Gamelands
- Land Conservation Properties (Land Trusts, other private conservation lands)
- All State Owned Lands
- General Soils Map
- Wetlands Types – Coastal
- National Wetlands Inventory
- Landcover data
- Hurricane Storm Surge Maps
- Wind Power Potential Map
- Federal lands including National Wildlife Refuges

And a variety of other demographic and political mapping

2) The Southeast GAP office also maintains a variety of map layers including modeling of vertebrate distribution and habitat communities. These layers are available for download at their website at <http://www.gapservice.ncsu.edu/segap/segap/>

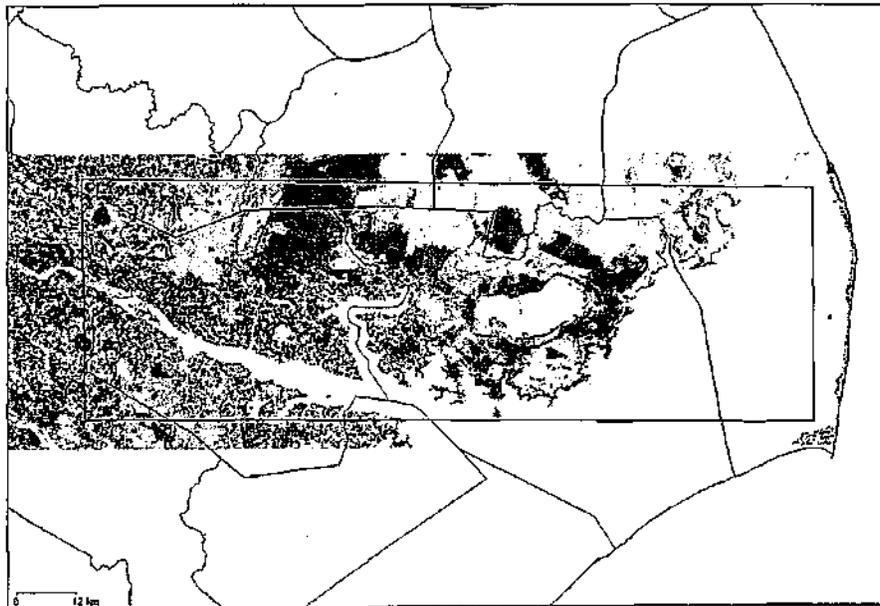
3) The Important Bird Areas Program layer is available from Audubon North Carolina at <http://ncaudubonblog.org/downloads/>

## Interactive, Web-based Mapping Resources

Many of the layers represented above are available through interactive mapping resources on-line if in-house GIS resources are not available.

1) Most of the NC One Mapping layers referenced above are used and available at the NC One Naturally Conservation Decision Tool. This is available at the One NC Naturally website at <http://portal.ncdenr.org/web/cpt/>

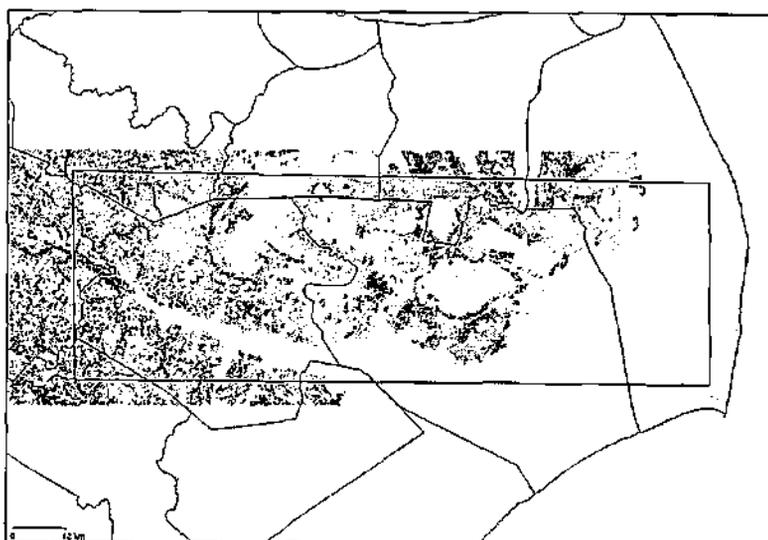
2) The Southeast Gap Office also offers an interactive mapping tool that uses predictive models for conservation priority species. This mapping tool allows users to define areas of interest or download their own project area layer. You may select individual species or groups of species to generate species richness models.



NC Gap map generated 2/29/08

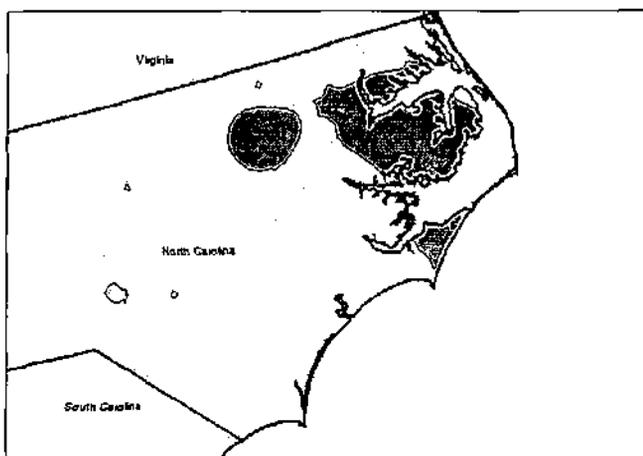
The map above is an example of the model generated for southern Hyde and Beaufort Counties for a group of conservation priority raptors including American Kestrel, Northern Harrier and Barn Owl, all of which are associated with open habitats and farm fields – areas likely to be considered for wind development.

Contrast this with the following map for Kentucky Warbler, Louisiana Waterthrush, Swainson's Warbler, Worm-eating Warbler, and Prairie Warbler. These species are associated with pocosin and floodplain forest habitats, a much rarer habitat type in this area.



NC GAP map generated 2/29/08

3) Another important interactive tool can be found at the US Department of Defense's Aircraft Hazard Advisory System (AHAS) and Bird Avoidance Model (BAM). Both of these interactive mapping tools are available at [www.usahas.com](http://www.usahas.com). The difference between the two is important in that AHAS is used in real time, usually for pilots on the day of their flight for a predictive indicator of bird usage of an area. The BAM data are a synthesis of existing bird data from a variety of sources that predicts the relative density of large targets during any period of the year. Another excellent feature of this data is the ability to also map any Military Operations Area (MOA) or Flight Route (both VIR and ) in the area of interest.



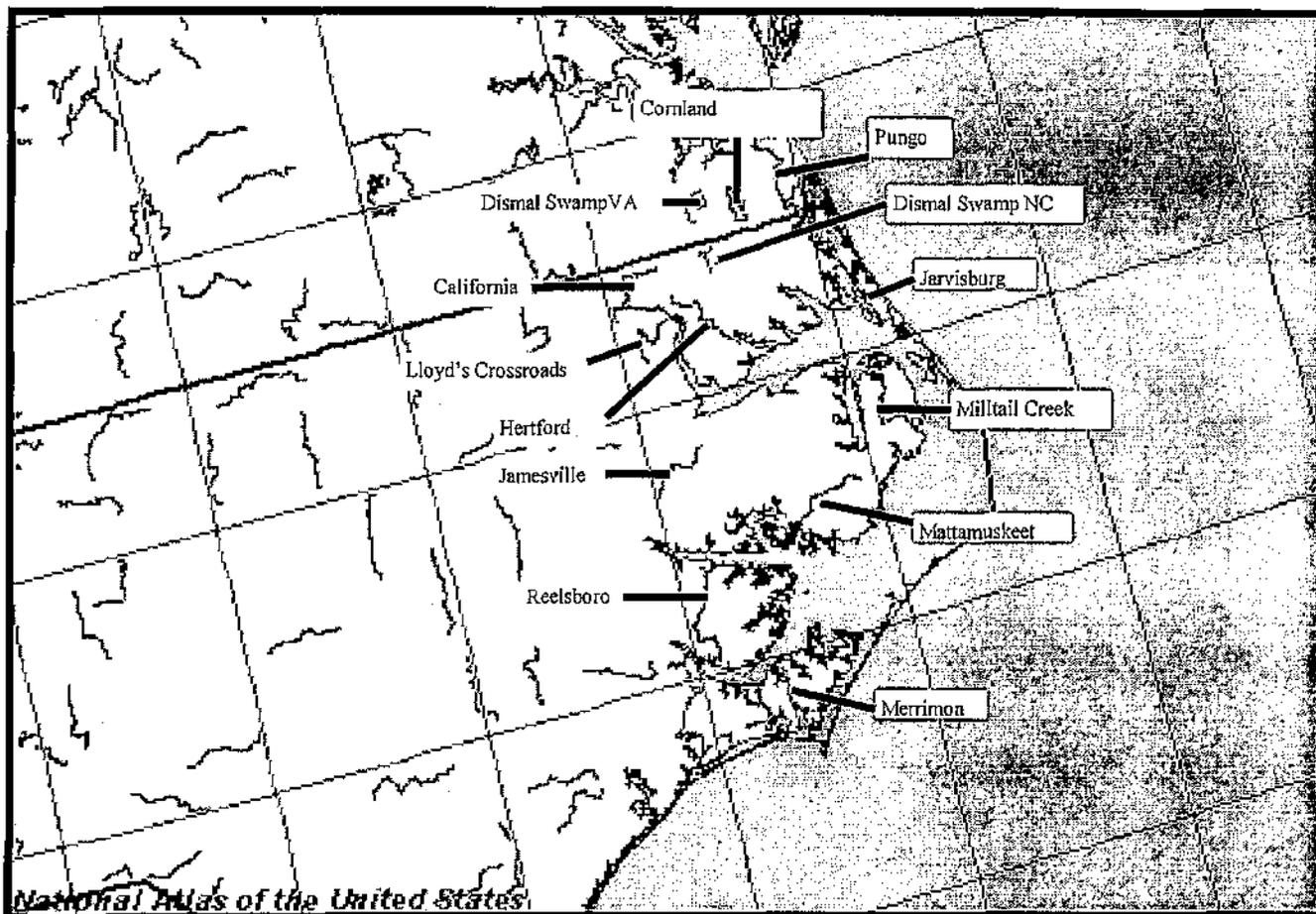
BAM Model for 1<sup>st</sup> week of March generated March 4, 2008  
Red = high number of targets; yellow = moderate; green = low

4) For an even broader range of possibilities use the National Atlas at [www.nationalatlas.gov](http://www.nationalatlas.gov). Here there are a variety of links for biological data on birds, habitats, and many, many others.

### Static Maps and Keys for Bird Data

With most bird specific data sets (Breeding Bird Survey, Christmas Counts, etc) it is important to know the locations names, codes, etc for specific sites to be able to drill down to specific data. This section will look at some static maps of locations for bird data, the links to the actual data search engines, and a key for most locations.

- 1) Breeding Bird Surveys data available at <http://www.mbr-pwrc.usgs.gov/bbs/bbs.html>



Breeding Bird  
Survey      Route Number

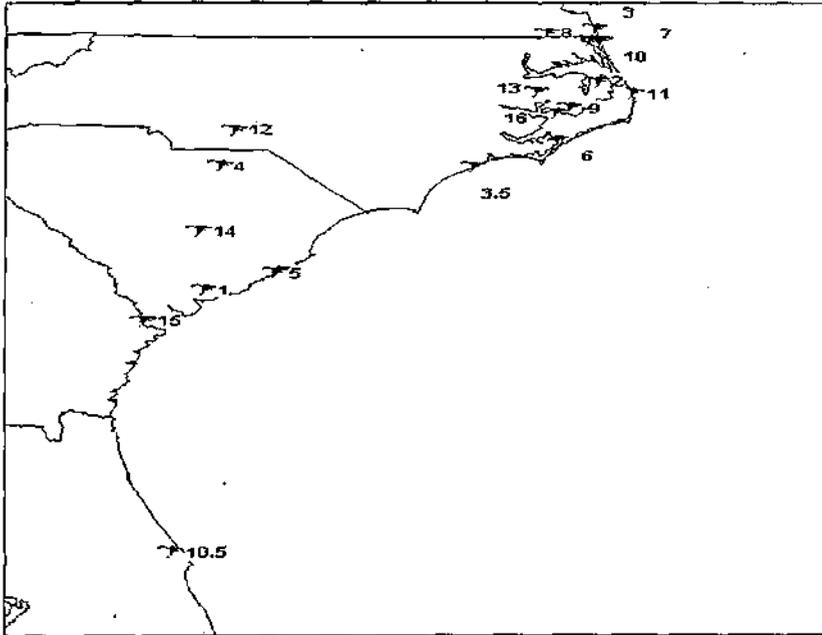
## Routes

Dismal Swamp	63905
California	63023
Hertford	63230
Lloyd's	
Crossroads	63223
Jamesville	63109
Mattamuskeet	63208
Milltail Creek	63107
Reelsboro	63108
Merrimon	63002
Jarvisburg	63229
Dismal Swamp, VA	88918
Cornland, VA	88046
Pungo, VA	88048

## 2) Christmas Bird Counts – Historical Data at <http://birds.audubon.org/historical-results>

Christmas Bird Count Circles	Circle Abbreviation
Kitty Hawk	NCKH
Pettigrew	NCPE
Alligator River Lake	NCAR
Mattamuskeet	NCLM
Bodie/Pea Island	NCBP
Cape Hatteras	NCCH
Ocracoke Island	NCOI
Portsmouth Island	NCPI
Morehead City	NCMC
New Bern	NCNB
Pamlico County	NCPC
Central Beaufort County	NCCB

Mid-winter Waterfowl Surveys data available at  
<https://migbirdapps.fws.gov/mbdc/databases/mwi/mwidb.asp>



Mid-winter Waterfowl Survey Areas	Site Number
Alligator River National Wildlife Refuge	2
Cedar Island National Wildlife Refuge	6
Currituck National Wildlife Refuge	7
Dismal Swamp National Wildlife Refuge	8
Lake Mattamuskeet National Wildlife Refuge	9
Mackays Island National Wildlife Refuge	10
Pea Island National Wildlife Refuge	11
Pocosin Lakes National Wildlife Refuge	13
Swanquarter National Wildlife Refuge	16

**Tower Locations** – Birds often encounter other hazards and the maps generated at <http://www.towerkill.com/reports/US/NC.html#start> can provide a visual representation of other obstructions in the area of interest.

#### **Additional References**

- 1) The North Carolina Natural Heritage Program conducts county inventories for significant natural areas, natural communities, and priority species. These county inventories are available from the Natural Heritage Program, and few of the executive summaries are available on-line at <http://www.ncnhp.org/>. Currently, summaries are on-line for Currituck, Beaufort, Pamlico, and Washington Counties. Inventories are complete for Carteret, Camden, and Pasquotank but are not on-line, and Tyrell and Dare Counties have not had inventories completed to date (early 2008). Completed inventories will provide lists of priority habitats and species found during the inventory process and are a good narrative to go along with mapping data discussed above. Completed inventories may be ordered from the Natural Heritage Program for a small fee.
- 2) The North Carolina Wildlife Resources Commission (WRC) maintains the NC Colonial Waterbird Database. This biannual effort visits known sites and searches for new sites within the coastal plain for both beach nesting colonial species and inland heronries. Contact the NC WRC for specific location data or to query the PAWS database.
- 3) Searchable records of the archives of the Chat, the publication of the Carolina Bird Club. Available on-line at <http://www.carolinabirdclub.org/chat/database.html>