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**Memorandum**

To: Ms. Hollis M. Redding  
SBA Towers II LLC  
One Research Drive, Suite 200 C  
Westborough, MA 01581

Date: May 5, 2010

Project No.: 40999.30

From: Linda Vanderveer, Biologist  
Dean Gustafson, Senior Environmental  
Scientist

Re: Connecticut Siting Council Docket No. 396  
Migratory Bird Impact Evaluation  
Proposed SBA Towers II LLC Facility  
49 Brainerd Road, East Lyme, CT

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At the request of the Connecticut Siting Council at its Public Hearing on April 22, 2010 for Docket No. 396, Vanasse Hangen Brustlin, Inc. (VHB) provides the following summary of potential impacts to migratory birds from a proposed wireless telecommunications facility (Facility) proposed by SBA Towers II LLC (SBA) at 49 Brainerd Road in East Lyme, Connecticut.

**Summary**

Flyway: Facility is within the Atlantic Flyway  
Closest Waterfowl Focus Area: CT River/Tidal Wetlands Complex (4.5± miles west)  
Closest Important Bird Area: Connecticut College Arboretum (7± miles northeast)  
Closest Migratory Waterfowl/Critical Habitat Area: Pattagansett River (0.25± mile southeast)  
Potentially Impacted Species: American Black Duck, Mallard  
Recommended Seasonal Restriction(s): None

**Analysis of Potential Migratory Bird Impacts**

Provided below is a detailed analysis of potential impacts to migratory birds from the proposed SBA Facility.

Flyways

The proposed Facility is located in a forested and residentially developed area near the Connecticut coast, west of the Pattagansett River. The Connecticut coast is part of the Atlantic Flyway, one of four generalized regional pathways (Atlantic, Mississippi, Central, and Pacific) followed by migratory birds traveling to and from summering and wintering grounds. The Atlantic Flyway is particularly important for many species of migratory waterfowl and shorebirds, and Connecticut's coast serves as vital stopover habitat. Migratory landbirds also stop along coastal habitats before making their way inland.

### Waterfowl Focus Areas

The Atlantic Joint Coast Venture (AJCV) is an affiliation of federal, state, regional, and local partners working together to address bird conservation planning along the Atlantic Flyway. The AJCV has identified focus areas identifying the most important habitats for waterfowl along the Atlantic Flyway. Connecticut contains several of these focus areas, but the vicinity of the proposed project has not been identified as one of them (refer to attached map of CT Waterfowl Focus Areas). The closest waterfowl focus areas to the proposed Facility include the Connecticut River and Tidal Wetlands Complex, located 4.5± miles to the west, and the Lower Thames River System, located 7± miles to the east.

### CTDEP Migratory Waterfowl Data

The Connecticut Department of Environmental Protection (CTDEP) created a Geographic Information System (GIS) data layer in 1999 identifying concentration areas of migratory waterfowl at specific locations in Connecticut. The intent of this data layer is to assist in the identification of migratory waterfowl resource areas in the event of an oil spill or other condition that might be a threat to waterfowl species. This layer identifies conditions at a particular point in time and has not been updated since 1999. The closest migratory waterfowl area is identified as American Black Duck and Mallard habitat associated with the Pattagansett River and estuary area located south of the AMTRAK rail line located 0.25± mile southeast of the proposed Facility. Refer to the enclosed Migratory Waterfowl Map.

This migratory waterfowl area also coincides with a Critical Habitat GIS polygon feature that represents a significant natural community. Critical Habitat areas are designated by CTDEP as key habitats for species of Greatest Conservation Need in the Comprehensive Wildlife Conservation Strategy. Critical Habitats serve to highlight ecologically significant areas and to target areas of species diversity, in this case focusing on American Black Duck habitat.

A more detailed discussion of American Black Duck and the proposed Facility's possible impact to this species is provided below.

#### *American Black Duck*

At the time of publication of the data, CTDEP identified concentrations of American Black Duck and Mallard in the region of the proposed Facility, approximately 0.25 miles to the southeast, south of the Amtrak railroad tracks, and extending to the mouth of the Pattagansett River (refer to attached Avian Resources Map). American Black Duck is listed as a "very important" species of Greatest Conservation Need in the Connecticut Comprehensive Wildlife Conservation Strategy (CWCS), published by CTDEP and approved by the U.S. Fish and Wildlife Service (USFWS) in January 2006. Mallard is not identified as a Species of Greatest Conservation Need in the CWCS. American Black Duck is not a state-listed species (Endangered, Threatened, or Special Concern) and has a hunting season; in this region of Connecticut the hunting season extends from mid-October through the third week in January.

Wintering Black Duck numbers in Connecticut and nationally have been in decline for several years, the reasons for which are still unclear to wildlife biologists. CTDEP has recently concluded a three-year study on Black Ducks along the Connecticut coast investigating habitat use and energy budgets. The final results of this study are not yet currently available, but an article published in *Connecticut Wildlife* (November/December 2008) suggests a decline in available food sources throughout the winter months. Energy budgets, or the amount of time an individual animal spends on various lifecycle activities such as foraging, loafing, sleeping, etc. are also important to wintering Black Ducks, and the less time spent moving around, the better. The more energy conserved by loafing or sleeping during winter months, the more fat reserves can be built up for nesting.

Accordingly, activities associated with the proposed project that could disturb wintering Black Ducks from sleeping or loafing have been considered. The USFWS has created a leaflet entitled *Human Disturbances of Waterfowl: Causes, Effects, and Management*. Key disturbances to waterfowl are identified as loud noises and rapid visual movements, such as boating activities.

There are no open views from the Pattagansett River to the proposed Facility location, until the top of the tower is erected. The aerial work and "movement" of equipment and materials associated with the tower erection would not be considered "rapid". With respect to noise from the proposed construction, there appears to be sufficient intervening vegetated buffer and topographic relief to naturally attenuate construction noise (refer to attached Migratory Waterfowl map depicting topographic conditions). In addition, it should be noted that the AMTRAK rail line already runs through the area via a bridge across the Pattagansett River. It is also widely reported that the Pattagansett River and associated estuary area is commonly used for recreational boating activities. Black Ducks and waterfowl using this marsh have already become accustomed to intermittent levels of noise from passing trains and local boaters. Finally, there is a fairly high level of human activity in close proximity to the Pattagansett River system already existing, as there is relatively dense residential development generally up to the marsh/water edge, numerous private waterfront docks, and Old Black Point Road running right along the east side of the river/marsh system.

#### Important Bird Areas

Audubon Connecticut has identified 27 Important Bird Areas (IBAs) in the state. The closest IBA to the proposed Facility is the Connecticut College Arboretum in New London, approximately seven miles to the northeast. This forested site has been identified as an IBA by Audubon Connecticut for its long-term research and monitoring of forest bird populations. Bird populations were censused every 2-4 years between 1953 and 1976, and annually between 1982 and 1997. The censuses will continue every 1-2 years into the future. Construction activities associated with the proposed Facility would not impact forest birds using the Connecticut College IBA. The only other IBA in New London County is Barn Island Wildlife Management Area in Stonington, located 18.5± miles east of the proposed Facility. Therefore, the proposed Facility would not result in an impact to Important Bird Areas.

#### Compliance with USFWS's Interim Guidance on the Siting, Construction, Operation and Decommissioning of Communications Towers

The United States Fish and Wildlife Service's *Interim Guidance on the Siting, Construction, Operation and Decommissioning of Communications Towers* (September 14, 2000), recommends 12 voluntary actions be implemented in order to mitigate tower strikes caused by the construction of telecommunications towers:

1. *Any company/applicant/licensee proposing to construct a new communications tower should be strongly encouraged to collocate the communications equipment on an existing communication tower or other structure (e.g., billboard, water tower, or building mount). Depending on tower load factors, from 6 to 10 providers may collocate on an existing tower.*

Response: Collocation on an existing building, tower or non-tower structure is not available while achieving the required radio frequency (RF) coverage objectives of the proposed Facility.

2. *If collocation is not feasible and a new tower or towers are to be constructed, communications service providers should be strongly encouraged to construct towers no more than 199 feet above ground level (AGL), using construction techniques which do not require guy wires (e.g., use a lattice structure, monopole, etc.). Such towers should be unlighted if Federal Aviation Administration regulations permit.*

Response: The proposed SBA Facility consists of a 170 foot tall monopole tower structure which will be unguyed and unlit.

*3. If constructing multiple towers, providers should consider the cumulative impacts of all of those towers to migratory birds and threatened and endangered species as well as the impacts of each individual tower.*

Response: Multiple towers will not be constructed at the proposed subject property.

*4. If at all possible, new towers should be sited within existing "antenna farms" (clusters of towers). Towers should not be sited in or near wetlands, other known bird concentration areas (e.g., state or Federal refuges, staging areas, rookeries), in known migratory or daily movement flyways, or in habitat of threatened or endangered species. Towers should not be sited in areas with a high incidence of fog, mist, and low ceilings.*

Response: There are no existing antenna farms in the area that would satisfy the RF coverage objectives for this portion of East Lyme. Although the proposed Facility is somewhat near a seasonal intermittent stream inland forested wetland system, no direct impact will occur to this wetland area. In addition, this seasonal wetland system is not considered to provide significant habitat for concentrations of birds. The proposed Facility is not located in any known bird concentration areas (e.g., state or Federal refuges, staging areas, rookeries), nor in habitat of threatened or endangered species. The CTDEP determined that there are no known populations of Federal or State Endangered, Threatened or Special Concern species that occur at the site in correspondence dated September 30, 2009, as provided in previously submitted materials to the Connecticut Siting Council on this Docket. In addition, the proposed Facility is not located in a waterfowl focus area, migratory waterfowl concentration area, critical habitat or important bird area.

The proposed Facility is located within the Atlantic Flyway, as is the entire coast of Connecticut. Although located within this flyway, compliance with the USFWS' Interim Guidance on the Siting, Construction, Operation and Decommissioning of Communications Towers will mitigate possible impacts to migratory birds. Although all coastal areas generally have a higher incident of fog than inland areas in Connecticut, the proposed tower is not located in an areas known to have an exceptionally high incidence of fog, mist, or low ceilings.

*5. If taller (>199 feet AGL) towers requiring lights for aviation safety must be constructed, the minimum amount of pilot warning and obstruction avoidance lighting required by the FAA should be used.*

Response: The proposed tower is less than 199 feet AGL (170 foot tower is proposed) and will be unlit. The FAA determined that the proposed Facility does not require lighting in correspondence dated 11/19/2009, included in application materials previously submitted to the Connecticut Siting Council in this Docket.

*6. Tower designs using guy wires for support which are proposed to be located in known raptor or waterbird concentration areas or daily movement routes, or in major diurnal migratory bird movement routes or stopover sites, should have daytime visual markers on the wires to prevent collisions by these diurnally moving species.*

Response: The proposed tower will be unguyed and therefore will not adversely impact known raptor or waterbird concentration areas or daily movement routes, or in major diurnal migratory bird movement routes or stopover sites.

*7. Towers and appendant facilities should be sited, designed and constructed so as to avoid or minimize habitat loss within and adjacent to the tower "footprint". However, a larger tower footprint is preferable to the use of guy wires in construction. Road access and fencing should be minimized to reduce or prevent habitat fragmentation and disturbance, and to reduce above ground obstacles to birds in flight.*

Response: The proposed towers and appendant facilities are sited, designed and constructed to accommodate proposed equipment and to allow for future collocations within the smallest footprint possible.

8. *If significant numbers of breeding, feeding, or roosting birds are known to habitually use the proposed tower construction area, relocation to an alternate site should be recommended. If this is not an option, seasonal restrictions on construction may be advisable in order to avoid disturbance during periods of high bird activity.*

Response: Significant numbers of breeding, feeding, or roosting birds are not known to habitually use the proposed tower construction area. The proposed Facility is not located in a waterfowl focus area, migratory waterfowl concentration area, critical habitat or important bird area and is sufficiently buffered from such areas so as to not require seasonal restrictions on construction.

9. *In order to reduce the number of towers needed in the future, providers should be encouraged to design new towers structurally and electrically to accommodate the applicant/licensee's antennas and comparable antennas for at least two additional users (minimum of three users for each tower structure), unless this design would require the addition of lights or guy wires to an otherwise unlighted and/or unguyed tower.*

Response: The proposed unguyed and unlit tower has been designed to accommodate four users to avoid the need for future towers in this area of East Lyme.

10. *Security lighting for on-ground facilities and equipment should be down-shielded to keep light within the boundaries of the site.*

Response: Security lighting for ground equipment will be down-shielded using Dark Sky compliant fixtures set on a timer with motion sensor.

11. *If a tower is constructed or proposed for construction, Service personnel or researchers from the Communication Tower Working Group should be allowed access to the site to evaluate bird use, conduct dead-bird searches, to place net catchments below the towers but above the ground, and to place radar, Global Positioning System, infrared, thermal imagery, and acoustical monitoring equipment as necessary to assess and verify bird movements and to gain information on the impacts of various tower sizes, configurations, and lighting systems.*

Response: With prior notification to SBA, USFWS personnel will be allowed access to the proposed Facility for evaluation.

12. *Towers no longer in use or determined to be obsolete should be removed within 12 months of cessation of use.*

Response: If the proposed tower is no longer in use or determined to be obsolete it will be removed within 12 months of cessation of use.

#### Available Avian/Tower Strike Studies

The Connecticut Siting Council also requested information regarding purported avian studies referenced in separate Dockets concerning proposed facilities in the Town of Old Lyme. At those hearings, representation was made regarding active bird/tower strike studies in upstate New York and Michigan. VHB researched numerous sources to obtain information regarding the existence of these reports. However, it appears that no documentation is currently publicly available regarding these actual studies. Based on current information, we believe the references to studies in Michigan made by others relate to articles on avian tower strikes, including:

- Audubon Magazine, 2003: , which states that, "Recently, Michigan has funded studies that could answer why birds seem particularly drawn to certain towers, and what can be done to keep them out of harm's way."  
<http://www.audubonmagazine.org/fieldnotes/fieldnotes0312.html>
- Wireless Estimator, which states that, "The FCC's preference for white strobe lights is largely based upon interim reports of the 2003 through 2005 studies that were undertaken by Dr. Joelle Gehring at the Michigan Public Safety Communications System's towers, indicating that comparable numbers of bird carcasses were found when only red strobe or only white strobe lights were used, irrespective of the towers' heights and the presence of guy wires."  
[http://www.wirelessestimator.com/t\\_content.cfm?pagename=Avian%20Mortality%20FCC](http://www.wirelessestimator.com/t_content.cfm?pagename=Avian%20Mortality%20FCC)

With respect to upstate New York studies, we found the following reference used in a paper published by the U.S. Fish & Wildlife Service regarding Communications Towers and Migratory Birds:

- Anonymous, 1998 (29 January). Bad weather causes Syracuse bird kill: as many as 10,000 Lapland Longspurs apparently crashed into radio towers in fog. Wichita (Kansas) Eagle.  
<http://www.fws.gov/southwest/es/oklahoma/Documents/StdLtr.htm>

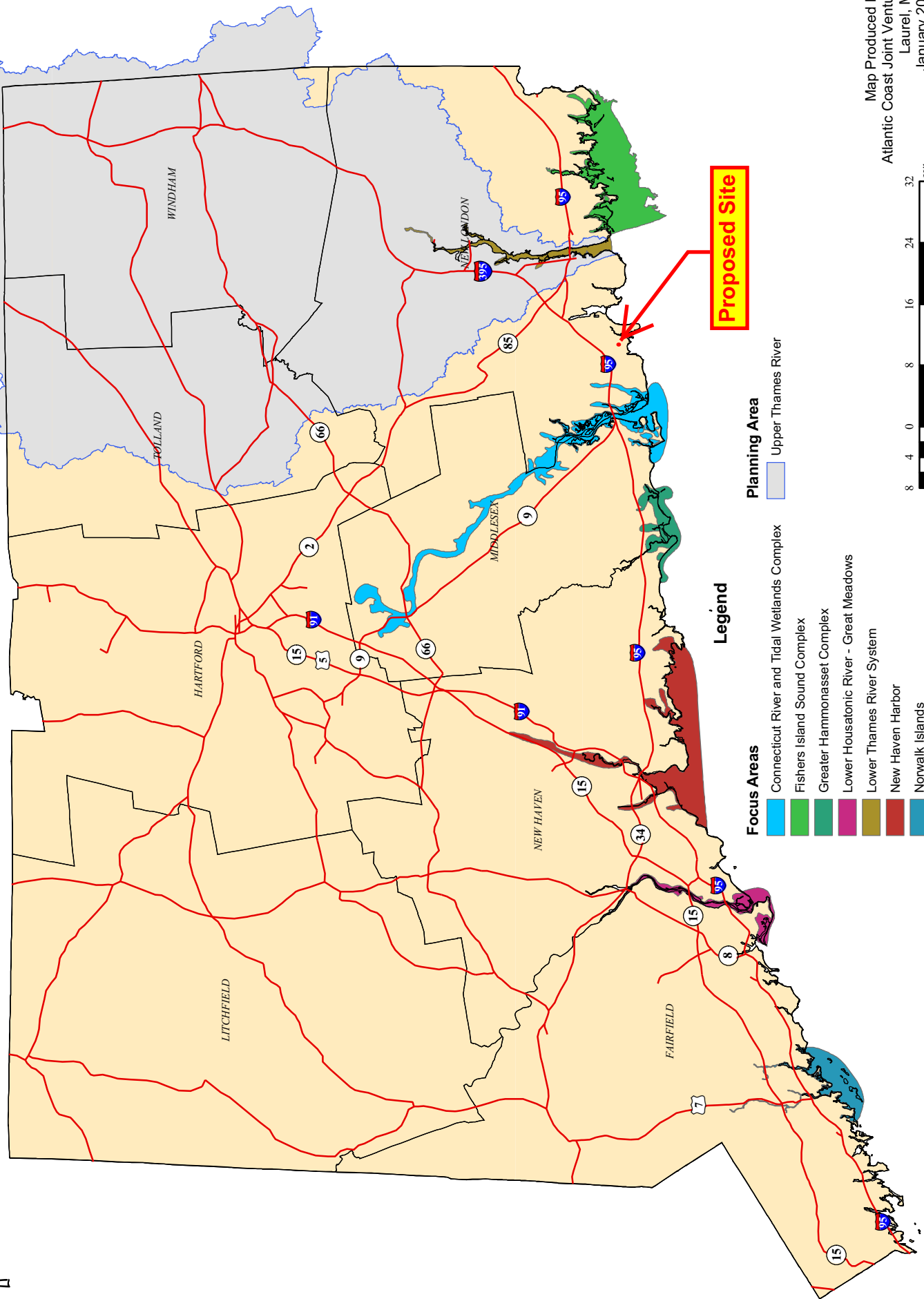
Copies of these articles are enclosed for your convenience.

### **Conclusion**

The proposed Facility is not located within a waterfowl focus area, migratory waterfowl concentration area, critical habitat area or important bird area. The proposed Facility is compliant with the USFWS' Interim Guidance on the Siting, Construction, Operation and Decommissioning of Communications Towers. Therefore, the proposed construction of the Facility will not result in a likely adverse impact to or take of migratory waterfowl. In addition, due to the existing buffer between the proposed Facility and nearby Migratory Waterfowl/Critical Habitat area and the existing level of human disturbance to the Pattagansett River habitat, no seasonal restrictions associated with wintering or breeding American Black Duck seasons are recommended for the proposed project.










Enclosures

# ATLANTIC COAST JOINT VENTURE CONNECTICUT WATERFOWL FOCUS AREAS



**Proposed Site**

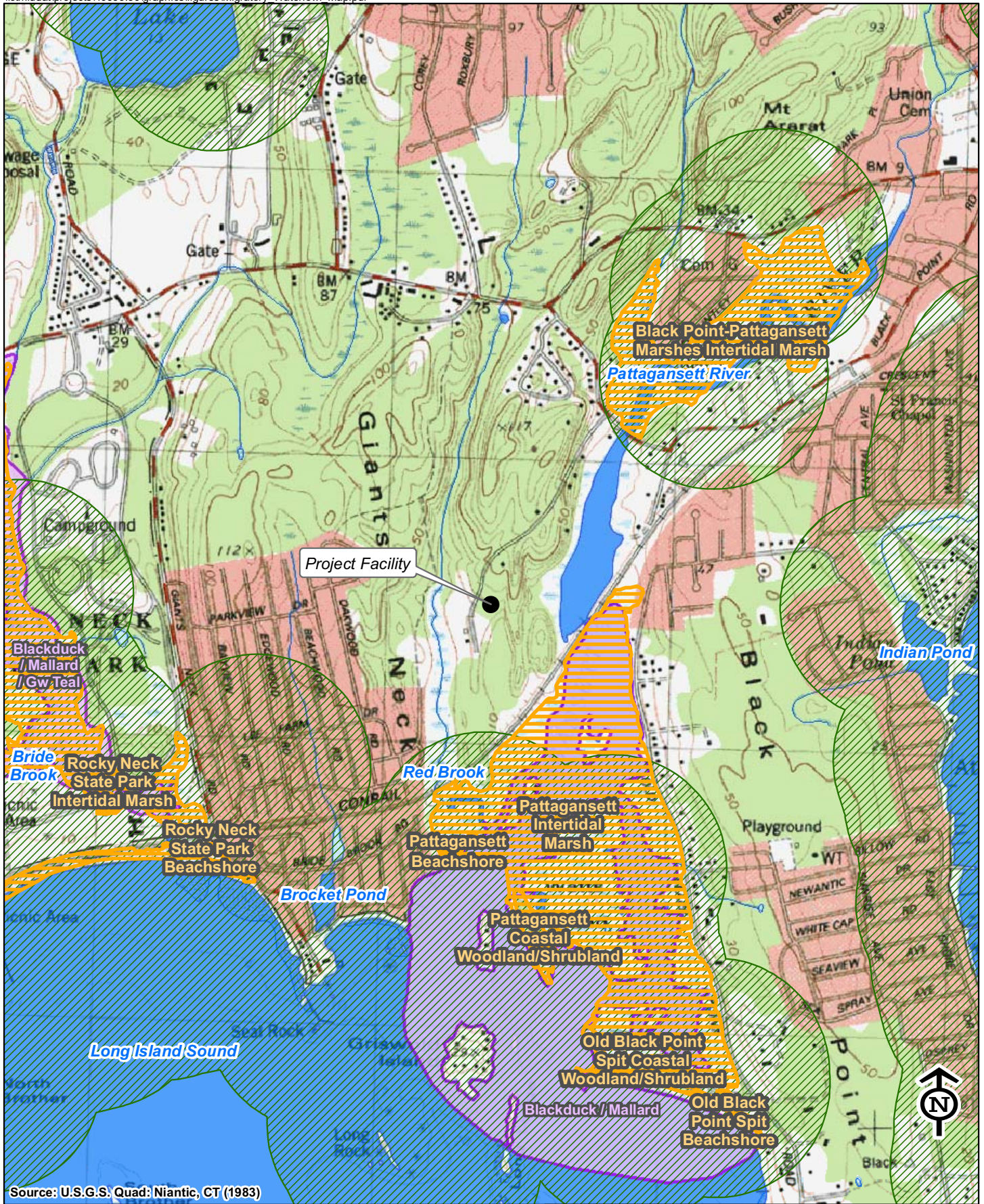
## Legend

- |  |  |
|--|--|
| <b>Focus Areas</b>   |  Connecticut River and Tidal Wetlands Complex |
|  Fishers Island Sound Complex           |  Planning Area                                  |
|  Greater Hammonasset Complex            |  Upper Thames River                             |
|  Lower Housatonic River - Great Meadows |  |
|  Lower Thames River System              |  |
|  New Haven Harbor                        |  |
|  Norwalk Islands                          |  |

Map Produced by:  
Atlantic Coast Joint Venture  
Laurel, MD  
January 2005



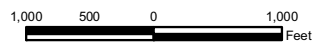




Source: U.S.G.S. Quad: Niantic, CT (1983)

**Legend**

- Proposed Facility Site
- Critical Habitat (CTDEP, 12/09)
- NDDB Areas (buffered; CTDEP, last updated 12/09)
- Migratory Waterfowl (CTDEP, 1999)
- Open Water



**Vanasse Hangen Brustlin, Inc.**

Migratory Waterfowl Map  
 Proposed SBA Towers II, LLC  
 Wireless Telecommunications Facility  
 East Lyme  
 49 Brainerd Road  
 Niantic, Connecticut





says Jody Jones, a biologist at Maine Audubon. "But the best solution is to eliminate the practice."

Earlier this year Audubon and the NoSnare Task Force, another group that has led the fight against coyote snaring, supported a bill in the state legislature that would have ended the program altogether. But that effort was rebuffed; instead, legislators changed the bill to preserve coyote snaring. State officials, for their part, intend to keep the program intact; they're now asking the U.S. Fish and Wildlife Service for "incidental take" permission, a provision that allows for the killing of endangered species during certain wildlife-management operations—like the snaring of coyotes.

—Ke Xu



What countries are the biggest global warmers? It's no surprise that the industrialized nations, such as Japan and the United States, are among the leaders, accounting for nearly 28 percent of global carbon dioxide emissions between them. But developing countries like China and India are catching up. Combined, these four countries are home to roughly 44 percent of the planet's 6.3 billion people. —Lindsay Carswell

Illustration by Alex Nabaum

## Progress Answering a Call

Maybe the message is getting through, after all. The government's communications czar says his agency, the Federal Communications Commission (FCC), will finally take a closer look at the impact television, radio, and cell phone towers are having on birds and the environment. Biologists believe the nation's 138,000 communications towers, which range

eventually leak out, potentially affecting the marine ecosystem as it dissolves in and acidifies the ocean.

—Lindsay Carswell

## The Real Playboy Bunny

Fame is all well and good, but Harrison Ford and Sting may one day be best remembered for the species scientists have named after them. If so, these celebrities will not be alone, says biologist Mark Isaak, who



has compiled a website called Curiosities of Biological Nomenclature (<http://home.earthlink.net/~misaak/taxonomy.html>), which lists the world's interestingly named yet little-known organisms. For instance, did you know that *Draculoides bramstokeri* is a spider named after Bram Stoker, author of *Dracula*? What about *C. garciai*, a wood roach named for the late Jerry Garcia of the Grateful Dead? And, yes, there is a Playboy bunny: *Sylvilagus palustris hefneri*, an endangered Florida rabbit named for Hugh Hefner.

—Christy Melhart

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from tiny antennae mounted in church steeples to steel spires soaring 2,000 feet into the sky, kill between 5 million and 50 million birds a year (see "[Faulty Towers](#)," *Audubon*, September–October 2001). Historically, the biggest kills—thousands of birds at a time—have occurred on cloudy nights during fall migration at tall, lighted TV towers. "The birds appear to be attracted by the lights," then die in "gruesome" collisions with girders and guy wires, says Art Clark, an ornithologist in Buffalo, New York, who has studied the problem for decades.

Big tower kills have become rare in recent years for reasons that aren't clear, he and researchers admit. But ornithologists are alarmed by a telecommunications revolution that is adding thousands of new spires to the landscape. Three years ago the U.S. Fish and Wildlife Service (FWS) recommended that tower builders take voluntary steps, such as bunching towers and using fewer support wires, to reduce the threat. But efforts to convince the FCC to consider the effects on birds when approving tower licenses didn't get far—and neither did bids to win government and industry funding to study the problem.

Both initiatives may now be gaining some traction. In August FCC chief Michael Powell opened a formal inquiry into tower kills, inviting public comment on everything from needed scientific studies to possible solutions. In part, the inquiry was the result of legal pressure from conservation groups, including the Forest Conservation Council and the American Bird Conservancy. The groups have challenged dozens of tower permits across the nation.

Recently, Michigan has funded studies that could answer why birds seem particularly drawn to certain towers, and what can be done to keep them out of harm's way. Elsewhere, the U.S. Coast Guard will soon begin a study of 20 of its emergency-broadcast communication towers. "We're taking baby steps," says FWS biologist Al Manville, an expert on the issue. "But at least we're moving."

—*David Malakoff*

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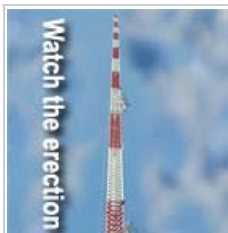


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## FCC sets its sights upon using white strobes as preferred lighting and restricting guyed towers

December 8, 2006 - Conservationists and vertical realtors agree that communications towers are responsible for killing many night-migrating birds estimated to represent 230 species, and additional research is needed.

Those are the only concurrences you'll find between the nature and technology groups as they prepare to square off again over the number of avian mortalities and viable solutions to prevent them from occurring following a re-launch of a Notice of Public Rulemaking by the Federal Communications Commission last month.

Spurred by environmental groups, the FCC said that it has tentatively concluded that tower owners should use medium intensity white strobe lights as the preferred lighting over red obstruction lighting systems for each new or altered registered antenna structure (See: [WT Docket No 03-187](#) ), but it is looking for additional information before enacting that regulation.

The Federal agency believes that there is supporting data available to warrant the change to protect migratory birds from communications towers.

It also announced that to provide greater bird protection it was seeking comments upon limiting the use of guy wires on towers; marking existing guy wires with bird flight diverters; limiting the height of towers to 199' above ground level; restricting towers in specific habitats, such as wetlands, ridges and mountains; greater co-location on existing structures; an environmental assessment for new towers; and other procedural measures the Commission could take to minimize migratory bird collisions.

### Statistics challenged

The U.S. Fish and Wildlife Service, which has pegged the annual deaths at 4 million to 50 million, has been challenged by industry associations as to the efficacy of their findings, saying there is no clear evidence that







telecommunications towers pose a real threat to migratory birds and the broad fatality estimates fall short of ensuring any statistical confidence level.

Having tentatively concluded that it has the authority to act in this arena, the FCC is requesting information pertaining to the impact that any new rules in this area would have on other environmental issues, such as historical preservation and wetland protection. The NPRM also addresses how applicants would prepare an environmental assessment under the FCC's rules if it is determined that a particular project would have an impact on migratory birds.

The FCC in recent years has wrestled with the question of what extent communications towers -- with particular focus on height, location, lighting and other aspects of tall structures -- might be contributing to migratory bird deaths. This latest commission action is designed to build on the existing public record and to seek public comment on specific legal and scientific issues.

Commissioner Jonathan Adelstein, one of the two Democrats on the GOP-led FCC, said that legal issue should not be left ambiguous.

"I, for one, am confident in our legal authority under the NEPA and the Communications Act to take action, if appropriate, and do not think our conclusion on this issue should be a tentative one," said Adelstein.

"I took a similarly firm position on the legal effect of the National Historic Preservation Act in our consideration of the Nationwide Programmatic Agreement, a determination that was recently upheld in the U.S. Court of Appeals for the D.C. Circuit."

Lacking definitive studies on birds and towers, the communications industry questions the wisdom of adding costly new regulations at a time when more towers are needed for expanding cellular phone service and high-definition TV and radio broadcasts.

### Maximum tower height of 199' being considered

Spurred by environmental groups with the American Bird Conservancy taking the lead, the FCC is considering whether to limit the height of towers to 199 feet, although a previous survey and comments by the National Association of Broadcasters identified that as high as 61% of the population served in major cities would not receive coverage with those limitations in place.

NAB also noted that wireless services that cover large footprints, such as public safety radio systems, are likely to experience significant decreases in service coverage if towers are capped at 199 feet. The result of such artificial limitations in tower height would significantly impair broadcast and wireless service, and inevitably disrupt critical and often life-saving services such as the broadcast emergency alert services, E-911, Amber Alerts and public safety communications, the NAB said.

Tower owners are also quick to point out that similar to broadcast and public safety groups, wireless carriers would have to provide considerably more towers at 199 feet or less to provide a semblance of coverage in an environment that finds communities objecting to many sites necessary to fulfill basic coverage.





Industry observers believe that the less-than-200-foot rule stands little chance of being enacted; however, the FCC has a fallback option that they are considering that was proposed by the ABC to rein in birds being injured by colliding with guy wires: curtail all new construction of guyed towers and only allow self supporting structures.

The FCC is requesting information on engineering and economic factors relevant to the use of guy wires, questioning whether there is a height threshold above which guy wires are generally necessary or if a guy tower is necessary depending on soil conditions or other factors.

Engineers say that there would be few limiting factors that would not allow a self supporting structure to be placed on any site in lieu of a guyed tower no matter what the elevation above ground level is.

However, the cost can be astronomical, prohibiting a tower's construction. The FCC is also asking for comments in this regard as to what economic factors affect the decision to use guy wires.

Contractors say that if a footprint is available for a guyed tower which requires additional property to provide a typical 80% guying of the structure's height, the total construction cost is more economically feasible at greater heights.

### Self support requirement cost could curtail deployment

A recent analysis of a 550' guyed tower by WirelessEstimator.com saw the manufacturer's steel cost at \$112,000 in a competitive market that might see slightly higher or lower offerings. A self supporting tower for the identical loading and height designed for a 110mph-basic-wind-speed saw the cost skyrocket almost 300% to \$334,000.

When the additional freight for the self supporting structure was added as well as the higher foundation and erection expenses, engineering, furnishing and installing the self supporting tower totaled \$327,000 more than its sister structure, an increase that would allow for a second guyed tower to be built.



### Rules could impact local public safety

The FCC is required by the Regulatory Flexibility Act to consider the economic impact of their actions upon small businesses and non-profit organizations as well as communities with populations of less than 50,000 residents. More than 87,525 of these jurisdictions rely upon their local communications structures for emergency services.

"It will be interesting to see if there is any pushback from these smaller communities," questioned a manufacturing executive who believes that there isn't enough credible avian mortality data to warrant any additional rules by the FCC.

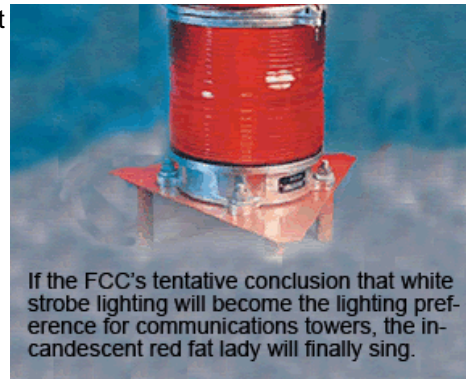
"I find it ironic. At a time when everybody agrees that our public safety communications systems need a major overhaul, the FCC is considering limiting the infrastructure as well as increasing the cost needed to provide it," he said.

### White strobes could be preferred lighting system

The FCC said that it has tentatively concluded that the use of medium intensity white strobe lights for nighttime obstruction lighting is to be the preferred lighting system over red obstruction lighting systems based upon information they have reviewed from the ABC and other conservation groups.



The agency believes that there is sufficient data and reports over the years indicating that during bad weather, birds can mistake tower lights for the stars they use to navigate, circling a tower as if mesmerized, often until they crash into the structure, its guy wires or other birds. Sometimes disoriented birds simply plummet to the ground from exhaustion, some studies state.



Researchers say red light waves may interfere with the magnetic compass of migratory birds, and some studies have indicated that blinking lights are less appealing.

"If you have a strobe light that even allows for a momentary period of darkness, it breaks that sort of spell and the birds are allowed to escape," said Darin Schroeder, deputy director of conservation advocacy at ABC.

The FCC said that it is aware that white strobe lights might be a concern for nearby residents and could possibly have an impact on the deployment of communications towers, but they say they're not in receipt of conclusive information that this concern is evident.

### Better no red than dead

The FCC's preference for white strobe lights is largely based upon interim reports of the 2003 through 2005 studies that were undertaken by Dr. Joelle Gehring at the Michigan Public Safety Communications System's towers, indicating that comparable numbers of bird carcasses were found when only red strobe or only white strobe lights were used, irrespective of the towers' heights and the presence of guy wires. The interim reports also indicated more bird carcasses were found at towers using red steady lights with red strobe lights than at towers using only red strobe, white strobe, or red blinking incandescent lights.

An industry coalition comprised of CTIA - The Wireless Association, National Association of Broadcasters, and PCIA - The Wireless Infrastructure Association previously commented to the FCC that it believes valid research work has not been conducted and must be properly reported before specific design recommendations are incorporated into or amend a Federal policy on the build-out and deployment of the nation's communications towers.

The coalition said, "Contrary to the assertions of the avian groups, their comments and materials are neither scientifically sufficient, nor do they warrant further regulatory action by the Commission in this area at this time."

The National Association of Tower Erectors, the first industry association to address the issue with the FCC in 2003, has joined the coalition to lend its support to the group and present its previous research on avian fatalities. NATE lobbyist Jim Goldwater said that the association was troubled by suggestions that action must be taken despite inadequate science.

"We are resolute that there is not enough science or research to warrant any punitive action or mitigation steps at this time. We are greatly concerned that if a step such as

#### Current FCC Positions [\(click here\)](#)

The FCC has provided their Notice of Proposed Rulemaking (NPRM) in the Matter of Effects of Communications Towers on Migratory Birds. WirelessEstimator.com has taken the agency's lengthy document and placed the content in a format that is easily navigated to quickly identify key points of interest.

#### Comments Submitted [\(click here\)](#)

On December 8, 2006 there were 314 comments sent to the FCC on the subject since August 20, 2003. They provide for an interesting read, but you'll find that the majority are cut-and-paste emails generated from conservation group campaigns.

#### Submit Your Comments [\(click here\)](#)

You can submit your comments directly to our forum which we in turn will summarize and send to the FCC prior to the due date of January 22, 2007. Or you can send your comments directly to the FCC through their [Electronic Comment Filling System](#).

a different lighting scheme is implemented, it will not only be costly, but down the road it could conceivably lead to enough residential consternation that citizens could balk against the siting of towers to what they believe is an offensive lighting scheme," Goldwater said.

### Asked and answered, Mr. Chairman

Many of the questions proposed in the NPRM have been asked before in the Commission's 2003 Notice of Inquiry and responded to with lengthy reports, but the FCC says that there was such a difference of opinion that no conclusions could be reached.

A study was commissioned by the FCC to assist in evaluating the submitted research.

The Avatar Environmental consulting group provided recommendations in 2004 in a 225-page report, but it stated that more studies were needed to identify specific causes and viable solutions.

Pro-avian groups that reviewed the Avatar Report provided their response in the Longcore Report which was countered by tower groups with the Woodlot Report which said the Longcore Report was filled with analyses and conclusions that were not supported by scientifically valid data and peer-reviewed research.

It is not known if any additional studies have been undertaken by conservation groups, but tower associations will be carefully monitoring comments submitted to the FCC to ensure that they can assess and respond to any new data.

Chairman Kevin J. Martin explained last month, "All concerns need to be balanced as we move forward" on the issue.



### Just say no to negotiating?

Some tower-industry leaders believe that there should be room for compromise between the divided camps. The FCC is trying to please everyone and would welcome any justifying change to existing regulations as long as it didn't allow the Department of Interior, U.S. Environmental Protection Agency or Federal Aviation Administration to usurp its authority.

However, a number of industry participants in the NPRM process think that there should be no compromise whatsoever. One industry observer believes that none of the FCC's conclusions or inquiries should be agreed to.

"If you look to create some type of compromise to solve this issue, you're tacitly acknowledging that there is a problem that has been created by communications towers and lighting systems. To date, the FCC has received no clear evidence to justify any changes," he said.

Others believe that if lighting systems are changed and it is later found that there is another cause resulting in avian mortality, then it would provide a green light for an additional modification that the FCC deems necessary.

Earlier this year, when the FCC denied a 2002 request from the American Bird Conservancy and the Forest Conservation Council to study whether wireless towers contribute to the death of migratory birds, PCIA was more forward about where it believes the scientific evidence points.



"There is no clear evidence that telecommunications towers pose a real threat to migratory birds. It is reassuring that the FCC refused to act on the basis of an inconclusive record," said PCIA President Michael Fitch.

Fitch will have another opportunity to comment upon the issue since the court's dismissal of the petition is being appealed. Earthjustice attorneys will present opening briefs before the federal appeals court in the District of Columbia by December 18, with the FCC's response due January 23.

The appeal of the Gulf Coast region petition **"moves our case forward and lets the FCC and industry know that the day of reckoning on the merits of the FCC handling of towers and birds is coming before a federal appeals court."** -- Gerald W. Winegrad

The appeal of the Gulf Coast region petition "moves our case forward and lets the FCC and industry know that the day of reckoning on the merits of the FCC handling of towers and birds is coming before a federal appeals court," said Gerald W. Winegrad, an attorney for the Washington, D.C.-based ABC.

Another suit challenging seven towers on two Hawaiian islands, with heights of 200 to 420 feet, was dismissed last January 2006 on jurisdictional grounds and also is on appeal.

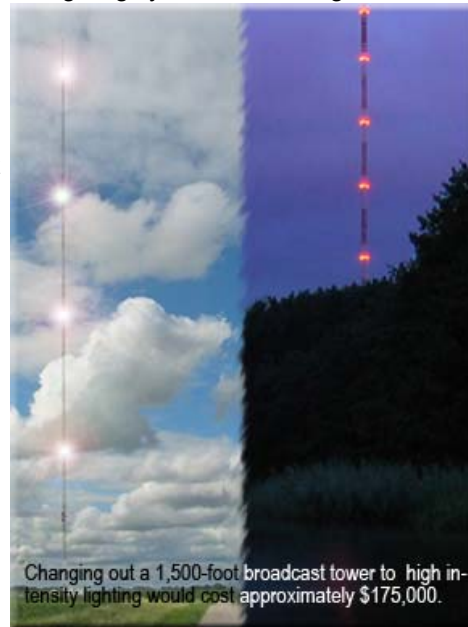
### Changing a bulb is not inexpensive

Birders believe that flyways will be protected if lighting systems are changed, an inexpensive consideration, some say.

Peggy Ridgway, a former president of the Michigan Audubon Society agrees that there is a cost to existing towers, but believes "it takes a small change of a light bulb to make a big difference in bird mortality."

The ABC skirts the cost of a new lighting system in its correspondence to the FCC, but emphasizes the lower energy costs of strobe lighting systems versus incandescent lighting.

Although they are correct in their power usage assumptions, adding new lighting requirements could increase costs to tower owners substantially, particularly if the FCC were to require that all existing tower lights be replaced, as some conservation groups are requesting.



The power usage issue, tower owners point out, is a red herring. They say new systems could cost anywhere from \$4,000 for a single medium intensity unit to \$100,000 for a high intensity lighting system for a 1,500-foot broadcast tower. In addition, the cost would be increased by installation expenses as well as the labor to remove the existing system, elevating the broadcast tower's cost to approximately \$175,000.

### Infertility could be next challenge to address

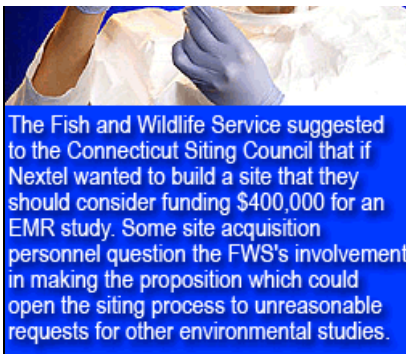
The most recent challenge to the communications industry was a recommendation published December 6, 2006 by The EMR Policy Institute for the FCC to take immediate precautionary action pending completion of studies of the effects of radio frequency radiation from communications towers in causing migratory bird infertility.

The non-profit public policy group wants to prohibit the nighttime operation of communications towers within five miles of any known migratory bird flyway in addition to





prohibiting the siting or operation of any communications towers or antennas within two miles of sensitive bird nesting areas or habitats of endangered and/or listed species.



The Fish and Wildlife Service suggested to the Connecticut Siting Council that if Nextel wanted to build a site that they should consider funding \$400,000 for an EMR study. Some site acquisition personnel question the FWS's involvement in making the proposition which could open the siting process to unreasonable requests for other environmental studies.

Their concern was partly prompted by an April letter to the Connecticut Siting Council from the FWS that said that preliminary research in Spain has shown strong negative correlations with levels of tower-emitted microwave radiation and bird breeding, nesting, and roosting in the vicinity of these electromagnetic fields which included nest and site abandonment, plumage deterioration, locomotion problems, and death.

However, The EMR Policy Institute failed to inform the FCC that the FWS-referenced infertility study used laboratory mice that were treated with radiation to replicate tower site conditions, and it was found that after five generations of newborns, irreversible infertility occurred - but the report's conclusion also stated that "What similar effect antennas may have on birds is unknown."

FWS Supervisor Michael J. Bartlett suggested to the Connecticut Siting Council that in considering Nextel's application in Falls Village, that they should suggest to the carrier that their Beebe Hill site would be an excellent experimental control site. The cost, Bartlett says, for a "scientifically robust, statistically sound, three-year study" would be approximately \$400,000.

### New NEPA would see immediate challenges

Although it is doubtful that the FCC would require a NEPA on migratory birds for every tower structure in the country, if they did conclude that it was necessary, legal challenges would stall the regulatory process for years to come.

Tower industry groups have previously stated that they disagree that the estimates of total human-caused bird mortality are not relevant to determine whether kills at communications towers meet the NEPA standard for a significant impact.



Their attorneys argue that the legal test under NEPA is whether the "human environment" is being "significantly" affected by losses of birds as an environmental resource in a way that is fairly traceable to communications towers.



They state that there is no credible data available for the FCC to determine whether communications towers are significantly affecting avian species populations without evaluating avian tower strikes in proportion to total human-caused bird mortality.

Glass windows such as those on the FCC (top) and FAA headquarters are estimated to be the primary cause of bird fatalities every year – between 100 to 900 million deaths. Similar to the deaths reported at tower sites, the collisions with windows' estimate does not provide a credible range of accuracy to employ confidence; however, there is not a national movement by the American Bird Conservancy to keep office building heights to less than 200 feet and restrict the structures from having windows, opponents of the NPRM say.

The National Audubon Society says 100 million birds a year are killed by cats. Glass windows are estimated to be the cause of between 100 to 900 million deaths each year. Electric transmission line collisions account for up to 174 million, plus hundreds of millions more from agriculture pesticide poisoning, hunting and other causes.

CTIA and NAB maintain that the FWS's 4 million to 50 million bird kills is inaccurate. However, the two industry associations will use the FWS's 2002 published estimate

to identify that a minimum of 10 billion birds breed in North America and the migratory bird population could be 20 billion in the fall.

The groups say that if there are 10 billion migratory birds nationwide, 5 million deaths caused by communications structures would account for only a 0.05% reduction of the migratory bird population each year.

Some conservationists say there might be some simple solutions, such as shields to focus the light upward for pilots.

One recent FCC commenter suggested the use of 80 wind driven whistles and an alternative of using gongs or sounding devices like wind chimes that would be installed at points along the tower.



### How the issue proceeds following the NPRM request:

The FCC can issue a Notice of Proposed Rulemaking (NPRM) such as [In the Matter of Effects of Communications Towers on Migratory Birds](#) . The NPRM will contain proposed changes to the Commission's rules and seeks public comment on these proposals.

After reviewing all of the comments to the NPRM, the FCC may also choose to issue a Further Notice of Proposed Rulemaking (FNPRM) regarding specific issues raised in comments. The FNPRM provides an opportunity for interested individuals and organizations to comment further on a related or specific proposal.

After considering comments to a Notice of Proposed Rulemaking (or Further Notice of Proposed Rulemaking), the FCC issues a Report and Order. The R&O may develop new rules, amend existing rules or make a decision not to do so.

Summaries of the R&O are published in the Federal Register. The Federal Register summary will tell you when a rule change will become effective.

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## Communications Towers and Migratory Birds

The population levels of many of North America's migratory birds have declined dramatically throughout the latter half of the 20<sup>th</sup> century, causing grave concern among land managers and biologists. These declines are thought to be due mainly to human-induced factors, such as habitat destruction, habitat fragmentation, pesticide use, and shooting. While some of these factors, such as pesticide use and uncontrolled shooting have decreased in the past few decades, other negative factors have been on the rise. The explosive growth of the communications tower industry, as well as unabated habitat loss due to development, are likely two of the more recent causes for the continuation in the decline of many migratory birds.

The Service is becoming increasingly concerned about the effect of communications towers on migratory birds, particularly guyed towers and towers over 200 feet tall. All native migratory birds (*e.g.*, waterfowl, shorebirds, birds of prey, song birds, etc.) are afforded protection under the Migratory Bird Treaty Act (40 Stat. 755; 16 U.S.C. 703-712). Communication towers and antennas may pose a hazard to migratory birds in flight and may pose a threat to nesting birds attracted to the site, depending on tower and site characteristics. Tower characteristics, such as height, physical design (*e.g.*, guyed, self supporting lattice, or monopole), lighting, and site location are factors in the equation concerning tower-induced bird mortality. Towers exceeding 200 feet in height and particularly towers that are supported by guy wires are expected to have a greater impact on migratory birds than shorter, free-standing towers and co-located towers.

Research and monitoring efforts have indicated that communication towers may be taking a devastating toll on our continent's migratory birds. It is estimated that millions of birds are killed by communications towers in the United States each year (The Ornithological Council, 1988). There have been documented occurrences of hundreds or thousands of birds colliding with towers in single events during peak migration periods (Norman, 1987; Roberts and Tamborski, 1993; Anonymous, 1998). The most devastating bird-tower collisions usually have occurred at night during conditions of low visibility, though large numbers of birds have also collided with towers at night during clear weather and during the day under foggy conditions. There are also documented occurrences of birds congregating around towers with aviation warning lights while migrating at night during inclement weather. During these events, birds apparently have become disoriented by the tower lights and have repeatedly circled the towers until they collided with guy wires, each other, or the ground, or died from sheer exhaustion. Due to the growth of the cellular phone and Personal Communication Service (PCS) industry, it is now estimated that new tower construction (over 200 feet) has accelerated to over 5,000 per year, so it is likely that bird mortality due to collisions with towers will only increase in the foreseeable future.

A Communications Towers Working Group composed of government agencies, industry, academic researchers, and non-governmental organizations has been formed to develop a research protocol to study the problem of bird-tower strikes and to determine how to best construct and operate towers to minimize bird strikes. Until the research studies are completed, the Service recommends voluntary tower siting guidelines to be used to reduce the impact of communications towers on migratory birds protected under the Migratory Bird Treaty Act and the Endangered Species Act. In order to obtain information on the usefulness of these guidelines in preventing bird strikes, and to identify any recurring problems with their implementation which may necessitate modifications, the Service requests to be advised of: 1) the

final location and specifications of proposed towers, 2) which of the measures recommended for the protection of migratory birds would be implemented, and 3) if any of the recommended measures can not be implemented, why they were not feasible.

Information on tower kills, including mechanisms, studies, literature, bibliographies, legislation, links, and summaries by state, is provided on the following website: <http://www.towerkill.com>. A good discussion on the effects of lighted structures and migrating birds can be found in the 1996 publication by the World Wildlife Fund and the Fatal Light Awareness Program, *Collision Course: the hazard of lighted structures and windows to migrating birds*. Other useful information, including a bibliography on bird kills at towers and other man-made structures, can be found here: <http://migratorybirds.fws.gov/issues/towers/towers.htm>.

### Measures Recommended for the Protection of Migratory Birds

We strongly recommend that sites selected for communications towers and other projects not impact wetlands and riparian areas, and be located as far as practical from these areas. Wetlands and riparian areas are high priority fish and wildlife habitat, serving as important sources of food, cover, and shelter for numerous species of resident and migratory wildlife. Waterfowl and other migratory birds use wetlands and riparian corridors as stopover, feeding, and nesting areas. Migratory birds tend to concentrate in or near wetlands and riparian areas and use these areas as migratory flyways or corridors, which could potentially exacerbate the documented problem of birds being killed by flying into and striking the communications towers. If unavoidable wetland impacts would occur after every effort has been made to avoid such impacts, the appropriate U.S. Army Corps of Engineers office should be contacted to determine if a permit is necessary prior to commencement of construction activities.

The Service strongly recommends that communications tower companies co-locate new communications devices on existing towers or other existing structures whenever possible to limit the amount of airspace and landscape impacted by communications towers. Secondly, we recommend that self-supported towers (*e.g.* lattice) or monopole towers be used instead of guyed towers, as guyed towers have been shown to be more detrimental to birds. The narrow diameter guy wires are apparently difficult for migrating birds to see both night and day, and guyed towers impact a much greater volume of airspace than non-guyed towers. We understand that the use of non-guyed towers instead of guyed towers may cause an increase in the materials and labor costs associated with new tower construction in some instances. However, it is a violation of the Migratory Bird Treaty Act to kill or attempt to kill non-game migratory birds at any time. Therefore, it would be in the best interest of the communications tower industry to do all it can to reduce bird-tower strikes before the problem becomes severe enough to result in management action or legislation. By developing a more environmentally-sensitive set of tower construction guidelines, individual tower companies could potentially realize a financially-rewarding Public Relations benefit as well.

We also recommend that new towers should be limited to 199 feet tall or less whenever feasible, as increased tower height is known to be related to bird mortality. The FAA also requires aviation warning



lighting for towers 200-feet tall and taller, and these lights have been reported to confuse and attract birds migrating in inclement weather conditions, which can compound bird mortality problems.

Additionally, we suggest that all proposed communications projects be located in previously cleared areas, urban or suburban developed areas, road or utility right-of-way, fallow fields or pastures, landscaped areas, or essentially any area that has already been disturbed and would require little or no clearing of native vegetation. Locating communications projects in these previously disturbed or developed areas should not only save money, but may help to expedite the review process for potential impacts on federally listed species because many of the threatened or endangered flora and fauna are associated with relatively undisturbed areas or sites where remnant pockets of native vegetation and/or wetlands are present. Therefore, projects located outside of, or far from, these areas are significantly easier to determine if endangered species or their habitat could be potentially impacted by proposed development activities.

We encourage the communications tower industry and environmental consulting agencies to collaborate with the scientific community to find solutions to the problem of bird-tower strikes. These collaborations may take the form of open communication, sharing of information on tower designs and bird strikes, access to towers to conduct bird casualty surveys and to test methods to reduce bird strikes, and voluntary funding of meaningful research.

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