Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Amendment of Part 1 of the Commission's Rules Regarding Environmental Compliance Procedures for Processing Antenna Structure Registration Applications	)	WT Docket No. 08-61 WT Docket No. 03-187
	)	
Federal Communications Commission Announces Public Meetings and Invites Comment on the Environmental Effects of its Antenna Structure Registration Program	)	DA 10–2178

To: Chief, Wireless Telecommunications Bureau

COMMENTS OF THE INFRASTRUCTURE COALITION ON THE PROGRAMMATIC ENVIRONMENTAL ASSESSMENT—SCOPING PHASE

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EXECUTIVE SUMMARY

The Infrastructure Coalition supports the Commission's initiation of a Programmatic Environmental Assessment ("PEA") regarding its Antenna Structure Registration program in response to the remand by the D.C. Circuit. Given the complexity of conducting the assessment nationwide, the Coalition believes the appropriate approach would be to address only the Gulf of Mexico area, which was the impetus for the court decision.

The Coalition agrees that the public should have a meaningful opportunity to participate in the scoping process through the filing of comments. Therefore it is essential that scoping be an early and open process that includes identifying the significant issues, as well as the range of actions, alternatives, and impacts that are to be considered. An iterative, collaborative process with meaningful disclosure and continuing public input is the best way of achieving this objective *before* the draft PEA is prepared.

Unfortunately, the scoping efforts undertaken to date are insufficient. The Commission has provided little or no information about what specific data the Commission and its consultant will consider or how they plan to analyze the data (*e.g.,* the methodologies and assumptions that will be employed). Nor has there been any disclosure of what possible outcomes are under consideration. In the absence of any meaningful delineation of the scope of the PEA, the public simply cannot provide meaningful comment.

For public participation to be feasible and useful, the Commission needs to provide notice of what it plans to consider, just as it must do so in a notice of proposed rulemaking. Accordingly, the Infrastructure Coalition urges the FCC to provide additional opportunities for public comment as it refines and particularizes the scope of the PEA process by issuing a Second Public Notice detailing the scope of the proceeding, including the items discussed in the preceding section, such as the data sources, assumptions, and methodologies that the Commission and its consultant plan to employ. The Second Public Notice should invite the public to comment on these matters and any other scoping issues the public would like the FCC to consider. Such an approach will promote transparency and more data-driven decision-making.

For the first nationwide PEA conducted by the Commission, it would be useful to consider how other agencies have conducted scoping. Other agencies' experience shows the efficacy of a multi-stage, iterative, and collaborative scoping process and the benefit of a full and candid discussion of assumptions and methodologies.

In scoping, the requirements of the Data Quality Act must be factored in to ensure that scientific information on which the Commission bases public policy meets the Data Quality Act's peer review requirement. In this connection, the Office of Management and Budget recommends that peer consultations should begin early in the process. Moreover, given the requirement of peer review, it is doubtful that avian mortality data based on anecdotal evidence can play any meaningful role.

Finally, the Coalition questions whether avian mortality studies concerning wind turbine towers can be relevant to a PEA relating to communications towers, as the two structure types are fundamentally different in construction, configuration, operation, and lighting. One key difference is that they are subject to significantly different FAA lighting requirements—turbines are lighted only at the top of the nacelle and are not subject to a requirement (applicable to many communications towers) to employ side-mounted steady-burning red L-810 lamps, which some consider to be a major contributor to avian mortality.

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To: Chief, Wireless Telecommunications Bureau

COMMENTS OF THE INFRASTRUCTURE COALITION ON THE PROGRAMMATIC ENVIRONMENTAL ASSESSMENT—SCOPING PHASE

CTIA–The Wireless Association® ("CTIA"),[1] the National Association of Broadcasters ("NAB"),[2] the National Association of Tower Erectors ("NATE"),[3] and PCIA–The Wireless Infrastructure Association ("PCIA")[4] (collectively, the "Infrastructure Coalition" or "Coalition")

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[1] CTIA–The Wireless Association® is the international organization of the wireless communications industry for both wireless carriers and manufacturers. Membership in the organization covers Commercial Mobile Radio Service ("CMRS") providers and manufacturers, including cellular, Advanced Wireless Service, 700 MHz, broadband PCS, and ESMR, as well as providers and manufacturers of wireless data services and products.

[2] NAB is a nonprofit trade association that advocates on behalf of local radio and television stations and broadcast networks before Congress, the Federal Communications Commission and other federal agencies, and the Courts.

[3] NATE is a non-profit organization serving as the unified voice of the tower erection, service and maintenance industry.

[4] PCIA is a non-profit national trade association representing the wireless infrastructure industry. PCIA's members develop, own, manage, and operate over 150,000 towers, rooftop wireless sites, and other facilities for the provision of all types of wireless and broadcast services.

respectfully submit their comments in response to the Commission's November 12, 2010 Public Notice.[5]

The Infrastructure Coalition supports the Commission's initiation of a Programmatic Environmental Assessment ("PEA") regarding the Antenna Structure Registration ("ASR") program and agrees that the public should have a meaningful opportunity to participate in the scoping process through the filing of comments. The Infrastructure Coalition respectfully submits, however, that the scoping efforts undertaken to date are insufficient. The Commission has given no clear delineation of what specific data the Commission and its consultant will consider, how they plan to analyze the data, and how the Commission and its consultant will conduct the PEA. In the absence of any meaningful description of the scope of the PEA, the public simply cannot provide meaningful comments that will assist the Commission on the PEA's scope. For public participation to be feasible and useful, the Commission needs to provide notice of what it plans to consider, just as it must do so in a notice of proposed rulemaking. Accordingly, the Infrastructure Coalition urges the FCC to provide additional opportunities for public comment as it refines and particularizes the scope of the PEA process, by issuing a Second Public Notice detailing the scope of the proceeding, including the items discussed in the preceding section, such as the data sources, assumptions, and methodologies that the Commission and its consultant plan to employ.

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[5] Public Notice, *Federal Communications Commission Announces Public Meetings and Invites Comment on the Environmental Effects of its Antenna Structure Registration Program,* DA 10-2178 (Nov. 12, 2010), *published,* 75 Fed. Reg. 70166 (Nov. 17, 2010).

I. INTRODUCTION

A. THE INFRASTRUCTURE COALITION SUPPORTS THE PEA PROCESS

The Coalition applauds the Commission's initiation of a Programmatic Environmental Assessment regarding the ASR program, as we believe it is an important step toward satisfying the court's remand in *American Bird Conservancy v. FCC,* 516 F.3d 1027 (D.C. Cir. 2008), and providing reliable data upon which the Commission can fashion a new ASR process that both responds to avian concerns and permits the continued roll-out of advanced broadband, broadcast, and other telecommunications services. However, in order for this proceeding to provide a solid basis for resolving issues regarding the potential environmental effects of registered antenna structures, the Commission must take care to fully vet scoping issues in a timely manner.

The court recognized that the Commission was entitled to consider the environmental concerns raised by the conservation groups by conducting an environmental assessment such as the one the Commission has initiated here.[6] Equally important, the court emphasized the need for the Commission to "involve the public"[7] in establishing its procedures for implementing the National Environmental Protection Act ("NEPA").[8] Such public involvement is especially important when conducting a programmatic review, such as this PEA. Only by conducting the PEA in a collaborative and transparent manner can the FCC fully obtain the diverse body of knowledge that the Coalition, the conservation groups and the general public can offer. [9]

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6 516 F.3d at 1034.

7 516 F.3d at 1035 (quoting 40 C.F.R. § 1506.6(a)).

8 42 U.S.C. § 4321 *et seq.*

9 Conducting the PEA in a transparent manner is consistent both with the President's Open Government Directive and the Commission's own commitment to carry out that directive. *See Open Government Directive,* M-10-06 (Dec. 8, 2009), *available at* http://www.whitehouse.gov/sites/default/files/microsites/ogi-directive.pdf; FCC Open Government Directive site, http://reboot.fcc.gov/open/.

Affording the public an opportunity for timely, meaningful input concerning scoping issues will minimize the risk that: (a) the Commission's consultant will have to significantly revise or completely re-generate its data after the draft PEA is released; and (b) that a party will feel it necessary to seek judicial review of the PEA because of its inadequately established scope and methodology.

The Coalition understands that from a variety of standpoints, this is a unique process that presents numerous challenges. First, in mandating a review, the court did not state whether a regional (*e.g.,* Gulf of Mexico) or nationwide review was necessary and the left the FCC to determine the manner in which it was to be conducted, suggesting that an Environmental Assessment ("EA") could suffice. Second, this is the first PEA the FCC has conducted. Third, the analysis required is complicated by the fact that the study is being initiated after the broadcast and telecommunications industries and their infrastructure (towers and collocated facilities) have been in place for decades. Given all of these factors, the Coalition continues to believe that a better course of action would be for the FCC to conduct an initial PEA covering the Gulf of Mexico area, which was the area of concern identified by the two conservation groups who brought the appeal that led to the remand, and it would allow the FCC to conduct its initial PEA on a more manageable scale.

II. THE SCOPING PROCESS MUST BE TRANSPARENT, DATA-DRIVEN, AND COLLABORATIVE

A. OBJECTIVES OF THE SCOPING PROCESS

The unique character of the Commission's mission will require it to be creative and flexible in its approach. Under the circumstances, we believe that aspects of the Council on Environmental Quality ("CEQ") guidelines and recommendations can be used for guidance purposes, specifically concerning scoping. The CEQ defines scoping as "an early and open process for determining the scope of issues to be addressed and for identifying the significant

issues related to a proposed action."[10] In turn, it defines "scope" as including "the range of actions, alternatives, and impacts to be considered."[11]

A nationwide PEA is a unique proceeding that does not fit squarely into the categories of an EA or an Environmental Impact Statement ("EIS") under the Commission's rules. As the Commission has indicated, it is conducting the PEA to determine whether there is a need for a Programmatic EIS ("PEIS"), in response to the court's remand decision.[12] As a result, an appropriately vetted scoping process here takes on greater importance because it may establish the parameters of the PEIS that may be conducted down the road. The objective of scoping is to establish the boundaries—the scope—of what may ultimately be considered in an EIS, should one be necessary.

Scoping, accordingly, necessarily requires a determination of what data will be considered or not considered, and what assumptions and methodologies will be employed in developing, considering, and analyzing the data. And by collaborating with the public at the scoping stage, the Commission "can help ensure that the analysis adequately addresses [the] issues of importance."[13] The benefits of collaboration range from the public assisting an agency to "identify [the] nature and extent of issues and impacts to be addressed," to making sure that "all relevant information [is] available, accessible, [and] being used."[14] Moreover, by working

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10 40 C.F.R. § 1501.7.

11 40 C.F.R. § 1508.25.

12 Public Notice, DA 10-2178 at 1 ("In the course of the PEA, the Commission will consider alternatives to address potential environmental effects, and will determine whether a more extensive analysis, in the form of a programmatic Environmental Impact Statement, may be required under NEPA.").

13 CEQ, *Collaboration in NEPA: A Handbook for NEPA Practitioners* at 20 (Sept. 2007) ("*Collaboration Handbook*"), *available at* http://ceq.hss.doe.gov/nepa/nepapubs/Collaboration_in_NEPA_Oct2007.pdf.

14 *Id.* at 28.

collaboratively with the public prior to drafting an EA or EIS to "determine the appropriate methodologies and criteria to use for scientific analyses (assessing existing conditions) and mitigation strategies," an agency can "strengthen the rigor and credibility of [its] impact assessment and mitigation strategies."[15] Thus, an iterative, collaborative process with continuing public input from the outset will assist the FCC and its consultant in establishing the proper scope of the PEA—*before* the draft PEA is prepared—and will promote transparency and data-driven decisionmaking.

B. THE CURRENT SCOPING PROCESS IS INSUFFICIENT

The Infrastructure Coalition agrees that the public should have a meaningful opportunity to participate in the scoping process through the filing of comments. However, the scoping efforts undertaken to date are insufficient. The November 12 Public Notice did not provide any scoping information—there is no mention of "the range of actions, alternatives, and impacts to be considered." Likewise, the materials made available on the PEA web page in advance of the December 6 scoping meeting provided no indication of what was going to be considered in the PEA, other than broad subject areas.[16]

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15 *Id.* at 29.

16 *See, e.g., Fact Sheet: Antenna Structure Registration (ASR) Programmatic Environmental Assessment,* available at http://wireless.fcc.gov/antenna/documentation/PEA_Fact_Sheet.pdf ("The primary issues to be addressed in the PEA are potential impacts of the ASR program on migratory birds as well as threatened and endangered species. The PEA will examine potential impacts from various tower types. The following variables will be examined: location[,] height[,] support structure or guy wires[,] lighting[.] The PEA will also consider cumulative impacts to resources."); *see also Scoping Meeting Guide,* available at http://wireless.fcc.gov/antenna/documentation/Scoping_Meeting_Guide.pdf ("Today you will learn more about the Antenna Structure Registration program and what the FCC is doing to evaluate its potential impacts on the human environment, including migratory birds, and threatened and endangered species."); *Scoping Meeting Presentation,* available at http://wireless.fcc.gov/antenna/documentation/Scoping_Meeting_Presentation.pdf ("Tower characteristics to be examined: Location[,] Height[,] Support structure or guy wires[,]

(continued on next page)

At the December 6 scoping meeting, the Commission disclosed that it has contracted with a consultant, URS Corporation, to assist in drafting the PEA, but it provided virtually no information regarding the intended scope of the PEA. Neither the Commission nor its consultant provided meaningful guidance as to the range of actions, alternatives, and impacts that the PEA will address. Neither during the meeting nor in the month following has there been any clear delineation of what specific data the Commission and its consultant will consider, how they plan to analyze the data, and how the Commission and its consultant will conduct the PEA. Moreover, the Commission has not made available transcripts of the two subsequent scoping meetings that were held in the field, despite the promise on the web page that the transcripts would be made public.

In the absence of any meaningful delineation of the scope of the PEA, the public simply cannot provide meaningful comments that will assist the Commission on the PEA's scope. For public participation to be feasible and useful, the Commission needs to provide notice of what it plans to consider, just as it must do so in a notice of proposed rulemaking.

Data Sources. During the scoping process, the Commission should identify the types and sources of data that are under consideration. Before the December 6 meeting, no such guidance was provided, either in the November 12 Public Notice or in the materials on the PEA web page.[17] Even at the December 6 meeting, the Commission and its consultant provided only a very limited view of this critical element, indicating that they would consider both peer-reviewed and non-peer-reviewed studies and also avian mortality data related to wind turbines. However, they gave no guidance as to which specific sources of existing data were under

(footnote continued)
Lighting[.]"). We note that the PEA web page has not been updated to provide any additional scoping information.

[17] *See* note 16 above.

consideration or review. Absent such information, the public lacks the ability to provide comment on the quality or reliability of the data that will be used in conducting the PEA.

How Data Will Be Gathered. At the December 6 scoping meeting, the Commission's consultant indicated that "existing documentation and studies" were going to be the focus of the PEA, suggesting that no new data gathering will be conducted. Moreover, the short time allotted for preparing the PEA, a draft of which is scheduled to be released in Spring 2011, would be insufficient to conduct any new studies. In any event, if data were to be gathered through new studies, the scoping process would need to identify how that data will be gathered—what procedures and protocols will be followed, where and when the data will be gathered, *etc.* Absent such information, the public lacks any basis for commenting on data gathering.

How Data Will Be Verified and Weighed. Scoping should identify how the agency plans to verify the reliability of pre-existing data of various types and weigh it against other data. In particular, the Commission has acknowledged that it will consider data from both peer-reviewed and non-peer-reviewed studies. Will the latter be limited to what the FCC's consultant referred to as "grey literature"— unpublished, publicly available scientific studies that were conducted in an unbiased manner in accordance with established protocols and procedures—or will anecdotal evidence from unaccredited sources from a wide range of periods be considered as well? To the extent anecdotal evidence is considered, appropriate methodology will be required to ensure it is treated in accordance with its inherently unreliable nature, rather than being placed on a par with a detailed scientific study. Without any information about the nature of the data to be considered or how it will be verified and weighed, there is little for the public to contribute in their comments.

Disclosure of Assumptions and Methodologies. The Commission should identify the assumptions and methodologies that it and its consultant will employ in arriving at intermediate results and analyzing data. For example, how will the Commission and its consultant project the number of future towers that will be constructed and subjected to the ASR process in future years? In this connection, how will historical figures be employed, given rapid changes in technology, collocation trends, and the Commission's objective of stimulating the availability of wireless broadband through the allocation of 500 MHz of additional spectrum, which will necessitate additional antennas? What assumptions will be made concerning the geographic distribution of the towers and the number of towers built at various heights? Considering that collocation is a viable alternative to building a new tower in many areas of the country, how will the projected number of towers be adjusted downwardly to reflect the impact of collocation?

If wind turbine data is to be considered (as indicated by the Commission's consultant at the December 6 scoping meeting), which the Infrastructure Coalition maintains it should not be, then it will be necessary to identify the type and source of wind turbine data that will be considered, and how will it be weighed in comparison to peer-reviewed and other scientific data concerning communications towers—especially given the significant differences between communications towers and wind turbine towers.[18]

No information concerning assumptions and methodologies has been identified to date. As a result, the public has no basis on which to provide meaningful comment about the methods by which the Commission plans to consider the data.

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[18] *See* Section V below.

C. ADDITIONAL SCOPING PROCEDURES WOULD BE NECESSARY TO SOLICIT MEANINGFUL PUBLIC INPUT

The Infrastructure Coalition urges the FCC to provide additional opportunities for public comment as it refines and particularizes the scope of the PEA process by issuing a Second Public Notice detailing the scope of the proceeding, including the items discussed in the preceding section, such as the data sources, assumptions, and methodologies that the Commission and its consultant plan to employ. The Second Public Notice should solicit comment on specific types of data and particular assumptions and methodologies that are currently under consideration. Further, the Public Notice should invite comment on any additional assumptions and methodologies (or other scoping-related matters) that members of the public consider important in light of the matters disclosed in the Public Notice.

This approach will be more collaborative than the current plan, by opening the Commission's processes to meaningful, informed input *after* the initial Comment filings but well in advance of the issuance of the draft PEA. It may also save wasted effort by availing itself of the unique expertise and perspectives provided by the conservation groups, the Infrastructure Coalition, and other interested stakeholders. This body of knowledge could prove invaluable to the Commission's efforts to identify scoping issues and avoid missteps before the consultant undertakes the significant effort necessary to prepare its draft of the PEA. Instead of waiting until after the draft PEA has been completed to solicit meaningful comment from the public on data sources, assumptions, and methodologies, the Commission should get these critical scoping issues on the table for discussion before the drafting and analysis has begun.[19] This approach

[19] In the worst case scenario, by its lack of knowledge of the particulars of the scoping process, the public would be foreclosed from bringing a potentially decisionally significant defect to the Commissions attention, until it saw the draft PEA. The Commission would then be faced with the prospect of having to tell its consultant to re-do some or all of its analytic efforts.

would promote transparency and ensure more data-driven decision-making. And whatever delay might be incurred by this process, it would be more than compensated for by the enriched record that would result and the decreased likelihood that unreliable information would be generated.

III. THE COMMISSION SHOULD TAKE ADVANTAGE OF THE EXPERIENCE OF OTHER AGENCIES IN ANALYZING ENVIRONMENTAL ISSUES

Just as the nationwide PEA is a matter of first impression for the FCC, it is also a new undertaking for the Infrastructure Coalition. We believe that, for perspective on the scoping process, it would be beneficial to consider the manner in which other federal agencies conduct their scoping efforts. The Infrastructure Coalition's avian consultant, Stantec, has had extensive experience with other federal agencies' NEPA practices, including the scoping process. In the attached Declaration, Gino Giumarro, a Certified Wildlife Biologist on the staff of Stantec, provides examples of how the U.S. Army Corps of Engineers, the Bureau of Reclamation, and the Bureau of Land Management have approached scoping in PEAs. He shows that those agencies conduct scoping in numerous stages with detailed disclosure of relevant information about what is to be considered and interaction with interested parties. In addition, the CEQ's *Collaboration Handbook* provides descriptions of other agencies' scoping processes that the Commission may find useful in developing the scope of its PEA.[20]

The bottom line emerging from the examples cited by Mr. Giumarro and those in the *Collaboration Handbook* is that: (a) it is beneficial to employ a multi-stage, iterative, and collaborative scoping process; and (b) a full and candid discussion of assumptions and methodologies will obviate the need to redress shortcomings after the FCC could have expended significant time, effort and money to develop incomplete or even faulty data.

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[20] *See* note 13 above.

IV. IT IS ESSENTIAL THAT THE COMMISSION INTEGRATE INTO ITS PEA PROCESS, AT THE EARLIEST POSSIBLE STAGE, PEER REVIEW AND OTHER PROCESSES FOR EVALUATING THE RELIABILITY OF DATA

The Data Quality Act ("DQA")[21] gives the Office of Management and Budget ("OMB") responsibility for promulgating guidelines "for ensuring and maximizing the quality, objectivity, utility, and integrity of information (including statistical information) disseminated by Federal agencies."[22] In 2005, OMB issued its *Peer Review Guidelines,* which require agencies, when otherwise permitted by law, to "conduct a peer review on all influential scientific information that the agency intends to disseminate."[23] The Draft PEA that is to be released this Spring constitutes influential scientific information,[24] and thus falls under the peer review mandate. This is consistent with the Commission's determination WT Docket 03-187—this very proceeding—that scientific studies used as a basis for environmental decisionmaking are subject to the DQA and the *OMB Peer Review Guidelines*.[25]

In light of the applicability of the peer review requirement, the Commission should consider OMB's recommendation that "it is most useful to consult with peers early in the process of producing information. For example, in the context of risk assessments, it is valuable to have the choice of input data and the specification of the model reviewed by peers *before the agency*

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21 Pub. Law 106–554, § 515, 114 Stat. 2763A–153-54 (2000) (also known as the Information Quality Act).

22 *Id.* § 515(a).

23 *OMB Peer Review Guidelines,* 70 Fed. Reg. 2664, 2675 [¶ II.1] (Jan. 14, 2005).

24 *Id.* [¶ I.6] ("The term 'influential scientific information' means scientific information the agency reasonably can determine will have or does have a clear and substantial impact on important public policies or private sector decisions.").

25 *Effects of Communications Towers on Migratory Birds,* WT Docket 03-187, *NPRM*, 21 F.C.C.R. 13241, 13257 n.105 (2006).

invests time and resources in implementing the model and interpreting the results. 'Early' peer review occurs in time to 'focus attention on data inadequacies in time for correction.'"[26]

Given the requirements of the DQA and related OMB guidelines, it is doubtful that avian mortality data based on anecdotal evidence can play any meaningful role in the Commission's decision-making. Such data, unlike "grey literature,"[27] cannot be reviewed for scientific accuracy. And to the extent such evidence is considered at all, it must be given minimal weight when compared with scientific studies whose quality and reliability can be properly evaluated.

V. WIND TURBINE AVIAN MORTALITY DATA IS NOT RELEVANT TO THE PEA FOR COMMUNICATION TOWERS

As noted above, at the December 6 scoping meeting, the Commission, through its consultant, indicated that avian mortality studies regarding wind turbine towers will be taken into consideration. Wind turbines are fundamentally different in construction, configuration, and operation from communications towers in ways that would appear to limit or prohibit the use of avian mortality data from one to the other category. One key difference is that turbines and communications towers are subject to significantly different FAA lighting requirements. As discussed in the attached declaration by Steven Pelletier, a certified wildlife biologist and a principal of Stantec, turbines do not employ side lighting at all, and the lights top-mounted on the mast are either flashing red or white strobe lights; many communications towers, in contrast, are required to employ lighting styles that include side-mounted steady-burning red L-810s. Given that some consider steady-burning L-810s to be a major factor in communications towers' effects on avian mortality,[28] the absence of steady-burning L-810s from wind turbines seems a critical

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[26] 70 Fed. Reg. at 2668 [preamble] (emphasis added).

[27] *See* page 7 above.

[28] In a presentation entitled, "Communications towers as barriers to bird migration and opportunity to reduced the risk," delivered by Prof. Joelle L. Gehring at the December 6 scoping

(continued on next page)

differentiation. As Mr. Pelletier explains, it is not clear to what extent avian mortality data associated with wind turbines would have relevance to communications towers.

If the Commission nevertheless uses wind turbine data, it is essential that it provide a detailed explanation of the assumptions and methodologies regarding how this data provides useful information in light of the critical differences between turbines and communications towers.

VI. CONCLUSION

For the foregoing reasons, the Infrastructure Coalition submits that the Commission should engage in a collaborative two step process to refine the scope of its PEA. The first step was to invite the public to provide comment today. The second and equally essential step is for the FCC to issue a Second Public Notice that provides the public with fundamental scoping information regarding: (a) what it seeks to accomplish; (b) what data it intends to use; and (c) how it intends to perform its analysis (including assumptions and methodologies utilized) and reach its conclusions. In addition, the Second Public Notice should invite comments that will allow the scoping process to become better focused.

By engaging members of the public, including conservation groups, the industry, and other interested parties, the Commission can leverage the experience and knowledge of all the stakeholders—broadcasters, telecommunications carriers, tower companies, conservation groups and the public at large. This will facilitate reliable, data-driven decisionmaking. It would also result in a transparent process that could generate valuable data that would satisfy the

(footnote continued)
meeting, Dr. Gehring stated her finding that towers with steady-burning side-mounted L-810s are responsible for 3.5 times as many instances of avian mortality as occur when other lighting schemes are used, and by eliminating L-810s, avian mortality associated with communications towers could be reduced by "as much as 70%." *See* FCC video archive, *ASR Environmental Assessment* at 20:30-21:30 (Dec. 6, 2010), *available at* http://reboot.fcc.gov/video-archives.

requirements of the Data Quality Act. Further, this course of action would enable the FCC to more effectively utilize its data in its decision making process and thus further enhance the public's confidence in the agency's decision-making procedures.

Respectfully submitted,

THE INFRASTRUCTURE COALITION

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January 14, 2011

Declaration of Steven Pelletier

1. My name is Steven K. Pelletier. I am a Certified Wildlife Biologist and Principal at Stantec Consulting in Topsham, Maine with over 25 years of professional natural resource experience, including the direct design and oversight of avian and bat migration and habitat studies in terrestrial and marine environments throughout the continental US. A copy of my CV is attached.

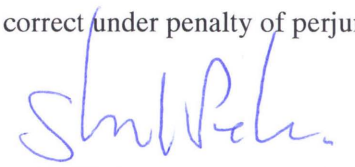
2. I am providing this declaration in support of comments to be filed by the Infrastructure Coalition with respect to the FCC's Programmatic Environmental Assessment regarding the Antenna Structure Registration system. This declaration is the result of my own research and I declare the following to be true and correct based on personal knowledge, information and belief.

3. In assessing general and specific standards for the marking and lighting of various types of obstructions to promote aviation safety, the FAA has provided a series of requirements and recommendations (USDOE Advisory Circular 70/746-0-1K; effective 2/1/07). Differences in requirements are however apparent between the differing types of obstructions. For example, general standards for radio and television towers and similar skeletal structures are subject to a diverse array of lighting and marking standards, each dependent on the overall height of the tower structure and the presence/absence of supporting guy wires. These include side and top lighting requirements with varying light intensity as well as flash sequence and synchronization standards, and involve L-810 Steady Burning Red Obstruction Lights, L-864 Flashing Red Beacons (with 20-40 flashes per minute "FPM"), L-856 High Intensity Flashing White Strobes (40 FPM), L-865 Medium Intensity Flashing White Strobes (40 FPM), and Dual L-864/L-865 Flashing Red Lights (20-40 FPM)/ Medium Intensity Flashing White Strobes (40 FPM) for daytime, twilight, and night use (pages 2-4 below).

4. In contrast, while the document reports that red lights are most effective and therefore the first consideration for lighting wind turbines, general standards for marking and lighting of wind turbine farms (Chapter 13-131) recommends nighttime wind turbine obstruction lighting consist of the FAA L-864 aviation red-colored flashing lights with 20-40 FPM. White strobe FAA L-865 (medium intensity; 40-FPM) may also be used in lieu of the preferred L-864 red flashing lights, but must be used alone without any red lights and positioned in the same manner as the red flashing lights. The position of the lighting on the turbine is also limited to the top of the nacelle on the tower, and does not include side mounted lights of any type (page 5). Thus, unlike many telecommunications towers, the FAA Advisory Circular does not permit wind turbines to utilize steady-burning side-mounted L-810s.

5. Given the differences in how the FAA requires the lighting to be between communications towers and turbine towers, the relevance of wind turbine avian mortality data to the FCC's PEA concerning communication tower registration is unclear.

I declare the foregoing to be true and correct under penalty of perjury.

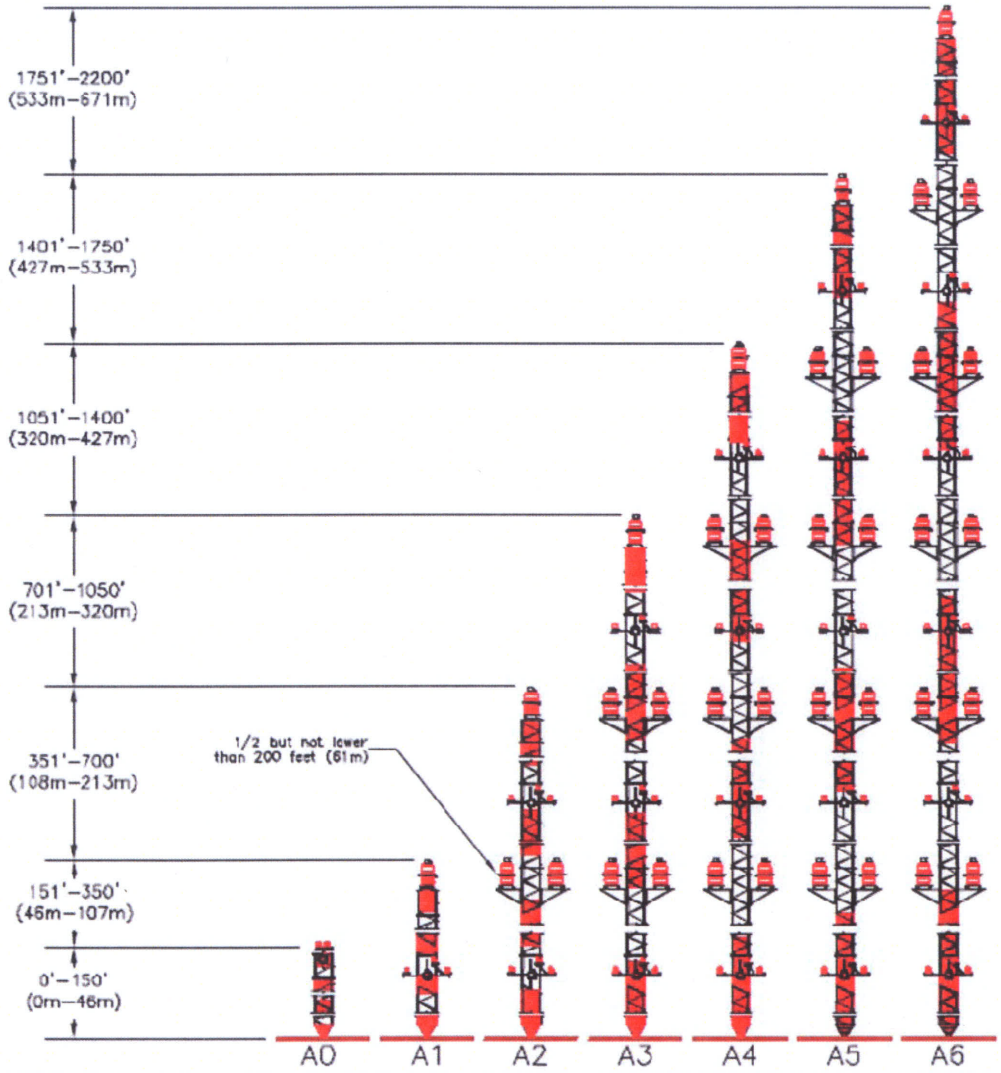


Steven K. Pelletier, CWB

Executed: 1/14/2010

RED OBSTRUCTION LIGHTING STANDARDS (FAA Style A)

Day Protection = Aviation Orange/White Paint
Night Protection = 2,000cd Red Beacon and sidelights

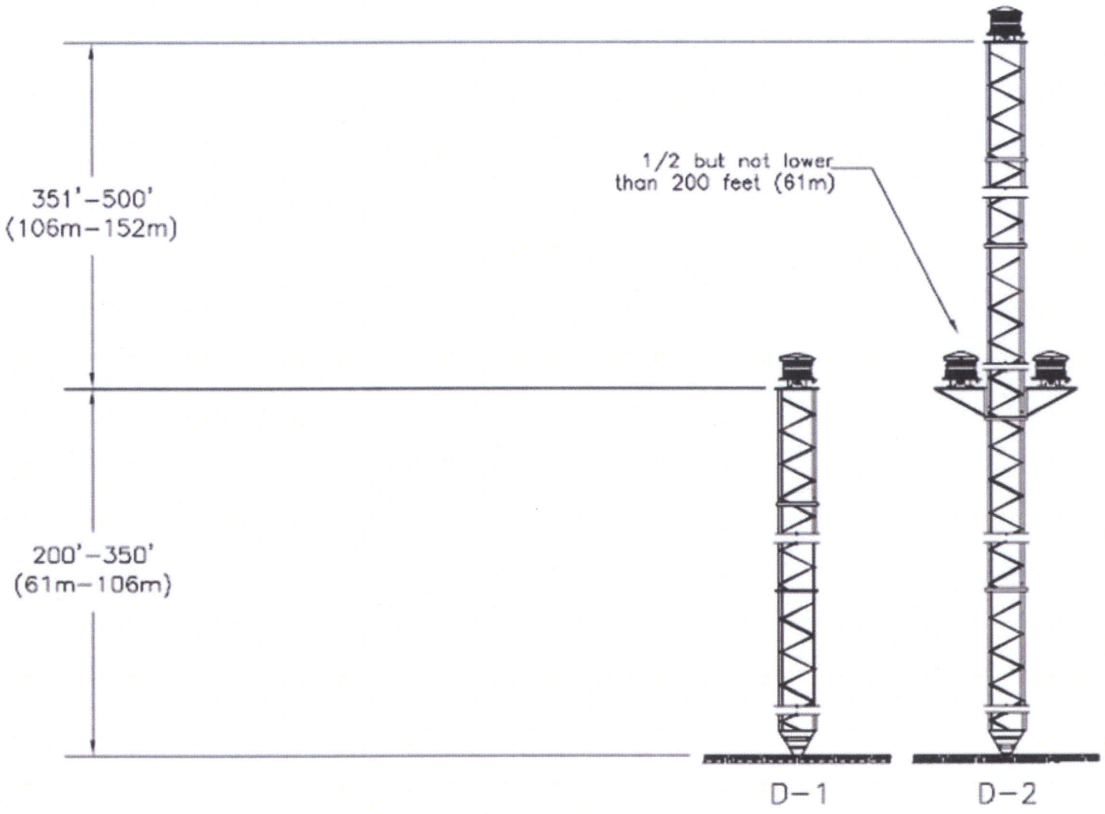


– L–864 Flashing Beacon

– L–810 Obstruction Light

MEDIUM INTENSITY WHITE OBSTRUCTION LIGHTING STANDARDS (FAA Style D)

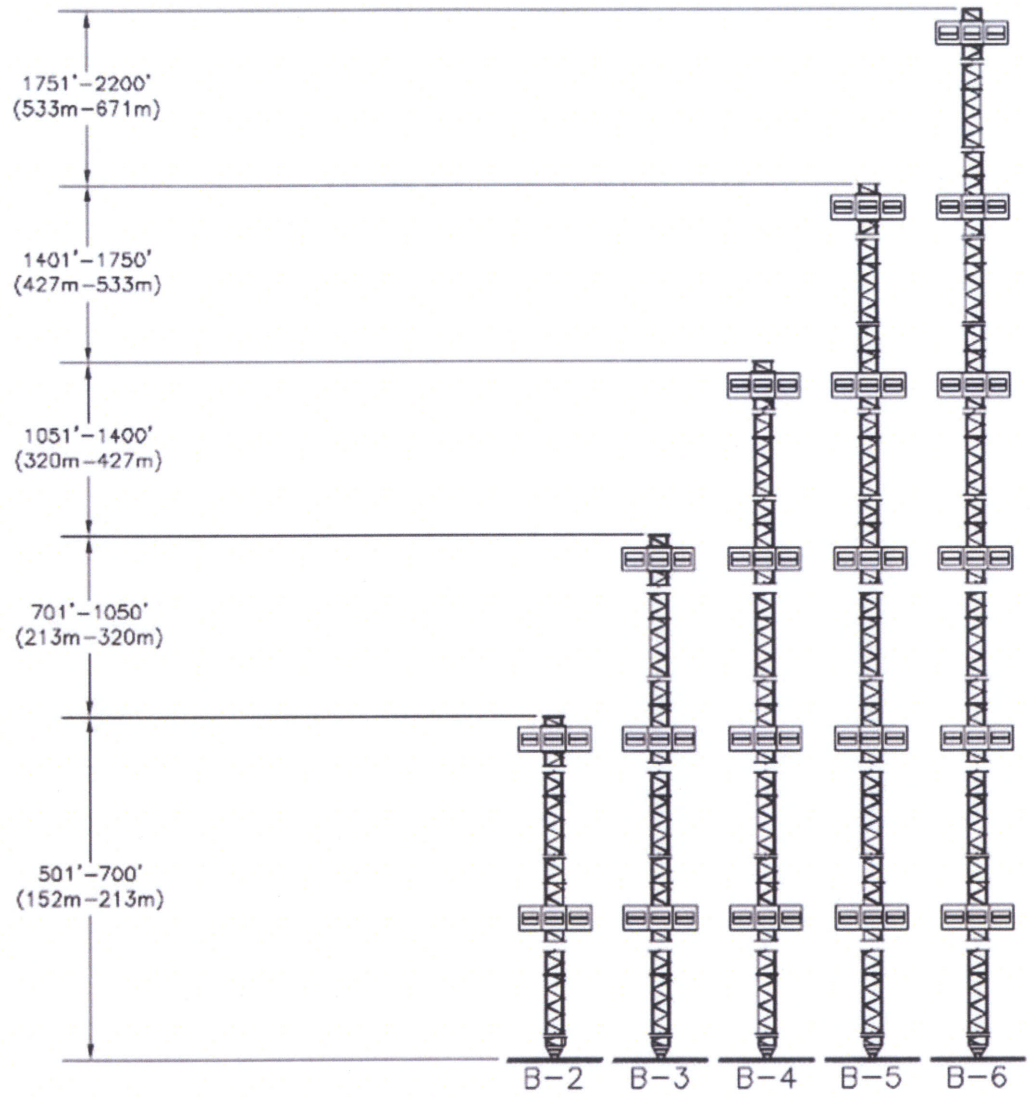
Day/Twilight Protection = 20,000cd White Strobe
Night Protection = 2,000cd White Strobe
Painting of tower is typically not required.



– L-865 Flashing White Strobe

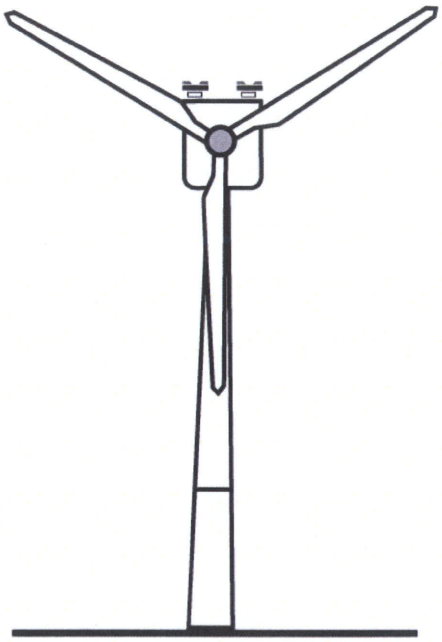
HIGH INTENSITY OBSTRUCTION LIGHTING STANDARDS (FAA Style B)

Day Protection = 200,000cd White Strobe
Twilight Protection = 20,000cd White Strobe
Night Protection = 2,000cd White Strobe

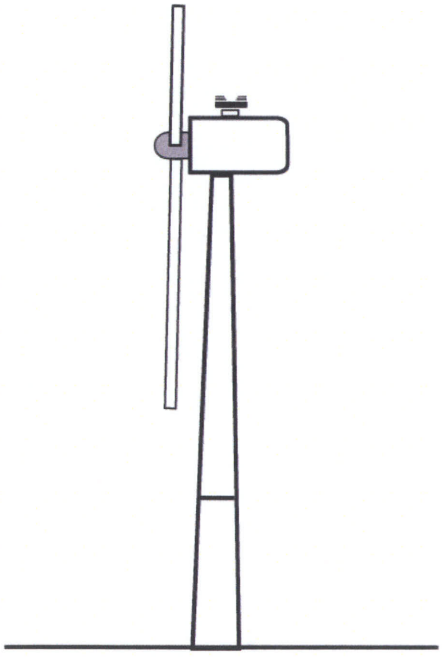


– L–856 High Intensity Strobe (3 Flashheads required per level for 360° coverage)

TYPICAL LIGHTING OF A STAND ALONE WIND TURBINE



Front View



Side View

Steven K. Pelletier PWS, CWB, LPF

Principal, Environmental Management

Mr. Pelletier is a Certified Wildlife Biologist, Professional Wetland Scientist, and Certified Professional and licensed Forester with over 25 years of professional experience. He specializes in a variety of landscape and site level natural community and habitat analyses, forest ecology/management, and project impact avoidance and mitigation. He offers particular expertise in rare species evaluations, avian/bat risk assessments, and wetland assessments for a variety of projects ranging from transportation to energy development.

Mr. Pelletier has provided expert witness testimonies and third-party reviews on a variety of ecological issues and concerns, and served on numerous State advisory committees and stakeholder groups involving diverse resource subjects such as mitigation banking, on/offshore wind energy, cumulative resource impacts, and vernal pools. He has also developed and taught wetland and timber harvest certification courses for municipal Code Enforcement Officers, and resource identification courses for Maine (DEP) staff and industry foresters.

PROFESSIONAL EXPERIENCE

- Stantec Consulting. 2007-present. Senior Principal.
- Woodlot Alternatives, Inc. 1987-2007. Vice President and Founder.
- Maine DEP. 1984-1989. Environmental Enforcement Specialist II.
- Maine Dept. of Inland Fisheries and Wildlife. 1980-1985. Seasonal Biological Assistant.
- US Forest Service, Platina, CA. 1982-1983. Wildlife Biologist.
- US Forest Service, Cordova, AK. 1981. Wildlife Biologist Assistant.
- US Navy, USS America (CV-66). 1974-1976. Photographers Mate.

EDUCATION

BS, Wildlife Management & Forestry, University of Maine, Orono, Maine, 1980

AS, Forest Management Technology, with Distinction, University of Maine, Orono, Maine, 1978

40-Hour Hazwoper Certification, OSHA, Topsham, Maine, 2010

REGISTRATIONS

Certified Wildlife Biologist, The Wildlife Society

Professional Wetland Scientist, Society of Wetland Scientists Certification Program

Certified Forester, Society of American Foresters

Licensed Professional Forester, State of Maine, Board of Licensure of Foresters

Certified in Habitat Evaluation Procedures, U.S. Fish & Wildlife Service, National Conservation Training Center

PROFESSIONAL ASSOCIATIONS

Member, Co-founder, Past President, Maine Association of Wetland Scientists

Ocean Energy Task Force, Environmental and Human Impacts Subcommittee, Maine State Planning Office

Maine Vernal Pools Work Group, Maine State Planning Office

Science Advisory Committee, Friends of Merrymeeting Bay

West Branch Stewardship Advisory Group, Forest Society of Maine

Member (Maine and New England Chapters), The Wildlife Society

Member and Former Board Member, Brunswick-Topsham Land Trust

Steven K. Pelletier PWS, CWB, LPF

Principal, Environmental Management

Board Member, State of Maine, Board of Licensure of Foresters

(Past) Maine Oil Spill Advisory Committee, appointed by Governor of Maine, State of Maine

Member, Society of Wetland Scientists

Member, Society of American Foresters

Member, Forest Guild

PROJECT EXPERIENCE

Natural Resource Services

Wind Farm Development Surveys and Risk Assessments (Principal Scientist)

Oversaw pre-construction wind energy development surveys and risk assessments at multiple sites throughout coastal Atlantic and northeastern US. Assessments include preliminary site screening , landscape analyses, fatal flaw analyses, neo-tropical migrant surveys using NEXRAD and marine radar, acoustic bat, breeding bird, bat mist netting, and raptor surveys, and ecological community characterizations. In addition, Mr. Pelletier has aided in development of a weight-of-evidence approach to risk assessments specifically for wind farms. This risk assessment approach was presented to the annual (2007) conference of The Wildlife Society in Tucson, Arizona.

Gulf of Maine Avian/Bat Pilot Migration Project, Gulf of Maine (Principal Biologist)

Designed and directed offshore fall (2009) avian and bat migration survey along ~140 mile transect along Maine coast from Petit Manan to Halfway Rock Islands, and extending up to 20(+) miles offshore to Mt Desert Rock. Survey included dual coastline/island x-band radar surveys and concurrent acoustic bat surveys at 12 dispersed locations including 10 offshore island sites. Project was supported by Stantec Consulting and included federal, state, and NGO partners. Survey results to be released and currently pending.

Expert Witness Testimony (Principal Scientist)

Provided critical State (ME, NH, VT, MA, WV) Expert Witness testimony on natural resource issues involving rare natural communities, landscape- and project-scale habitat fragmentation, avian, bat, and terrestrial rare species impact assessments, avian and bat migration, and timber trespass. In addition, Mr. Pelletier has provided external third-party reviews of proposed project impacts on behalf of state review and regulatory agencies.

Plum Creek Moosehead Lake Region Concept Plan, Maine (Project Manager)

Managed and oversaw extensive, multi-year broad spectrum and comprehensive natural resource evaluation and field analysis of lands in the Moosehead Lake region of Maine. Landscape-level surveys were conducted across approximately 11,000 acres of land proposed for development, and 392,000 acres of permanently conserved lands as proposed by the Plum Creek Concept Plan. Surveys included rare, significant, or otherwise unusual or unique natural resources that could potentially be present within each proposed development area and involved rare, threatened, or endangered (RTE) wildlife habitat; RTE plant species; Significant Wildlife Habitat, including potential Deer Wintering Areas and Inland Wading Bird and Waterfowl habitat; aquatic habitats, including vernal pools, streams, and shorelines; and Maine Land Use Regulation Commission communities. Extensive reports and maps summarizing survey results were prepared, followed by extensive expert witness testimony. Findings were key to the successful permitting of the Plan and developing the nationally recognized Moosehead Region Conservation Easement.

Greenbush Natural Resource Characterization, Permitting, and Environmental Monitoring, Hingham, Cohasset, and Scituate, Massachusetts (Project Manager)

Directed identification and assessment of wetland and vernal pool resources and state-listed rare wildlife and plant species relative to reconstruction of an abandoned 18-mile railroad right-of-way. Developed key mitigation (rail line crossing) design elements enabling MESA compliance for a rare species "take" and approval of required Conservation Management Permit. Conducted pilot assessment of a prototype crossing structure designed for use by spotted turtles and other urban wildlife, and oversaw monitoring of rare species pre-, during, and post-construction of the rail line including water quality monitoring of 52 on-site and control vernal pools, surface water sampling for hydrocarbon analysis, amphibian egg mass, invertebrate and vegetative community surveys, and spotted turtle radio telemetry. Provided expert witness testimony and participated in state DEP and MNHESP agency consultations on behalf of MBTA.

Steven K. Pelletier PWS, CWB, LPF

Principal, Environmental Management

Buzzards Bay Oil Spill Impact Assessments, Boston, Massachusetts (Project Manager)
Emergency Oil Spill Response, assisted in oversight of spill response efforts on behalf of NOAA Natural Resource Damage Assessment (NRDA) team, coordinated wetland habitat and avian impact evaluations within the affected coastal zone immediately following spill, conducted intensive surveys of waterfowl and wading bird populations in oil spill area, and assisted NOAA and USFWS in preliminary planning of habitat restoration efforts. Serves as member of NOAA's NRDA team, contracted to perform scientific and ecological studies for NOAA on a nationwide basis.

Carriage Road Rehabilitation - Acadia National Park, Bar Harbor, Maine (Project Manager)
Developed long-term vista restoration strategies for a variety of scenic forest vista types along the historic, 51-mile Carriage Road system in Acadia National Park. Work included relocation of several hundred interior and exterior viewsheds as originally envisioned and developed by JD Rockefeller and generation of a series of low-cost, silvicultural management strategies for and maintaining trees and woody vegetation associated with this public resource over the long term.

Casco Bay Watershed Wetland Characterization, Cumberland County, Maine (Project Manager)
Provided technical oversight for development of GIS-based Pilot assessment methodology within 985-square-mile Casco Bay Watershed in support of function-based system to identify priority wetlands throughout Maine. Activities included air photo and NWI interpretation, conducting field evaluations, generating GIS data sets and maps, and coordination with Federal and State Pilot Project Steering Committee members. Final process advanced methods for identifying wetland compensation opportunities in the region and throughout the State.

Maine Forest Sustainability, Maine (Certified/Licensed Professional Forester)
Conducted technical evaluation of State forest sustainability issues on behalf of the Maine Forest Service. Purpose of the evaluation was in support of a comprehensive analysis of state-wide forest components, conditions and susceptibility to threats. Evaluation incorporated direct interviews of professional representatives from academic institutions, the forest industry, federal and state agencies, non-government environmental organizations, resource consultants, and private researchers from across Maine.

Acadia National Park Rehabilitation NEPA Documentation, Bar Harbor, Maine (Project Manager)
Directed natural resource and cultural resource assessments for reconstruction and infrastructure work on 10 major projects at Acadia National Park, including rehabilitation of 24 historic bridges, beach areas, visitor facilities, campgrounds, and power line infrastructure. Coordinated wetland and ecological surveys, production of NEPA Environmental Assessments and Categorical Exclusion documents, and coordination of local and state permitting for the projects.

New Hampshire ATV Policy Development and Trail Planning, New Hampshire (Project Manager)
Oversaw research and development of statewide ATV Trail Plan to address dramatic growth in ATV use throughout NH. Plan inventoried existing trails open to the public, including trail length and condition, organizations responsible for maintenance, funding levels, and estimated use. Using registration and demographic data, the amount of trail expansion required to accommodate the public need for the next 5 years was assessed. Identified sites for strategic acquisition and trail development by the state, reviewed the environmental sensitivity of these sites, and assessed level of funding necessary for purchases of land, easements, and rights-of-way. Also evaluated state's statutory process for development of ATV trails on public lands, including a review of environmental filter protocols.

Schoodic Point Assessment, Winter Harbor, Maine (Certified/Licensed Professional Forester)
Conducted a timber-based, ecological assessment of a 1600-acre parcel on Schoodic peninsula on behalf of Friends of Acadia, Acadia National Park, and Maine Coast Heritage Trust, in response to local and regional concerns over proposed timber harvesting on the parcel. A Conservation Plan was developed in cooperation with the landowner/developer, based on sustainable forest management principles, minimizing adverse impacts on adjacent Park Service lands and Park visitor experiences.

Plum Creek Deer Wintering Surveys, Maine (Project Manager)
Managed and oversaw a typical growing season and (typical) winter field surveys to evaluate deer wintering habitat on 60,000(+) acres of Plum Creek land in areas with historic deer use. Surveys conducted in concert with Maine Department of Inland Fisheries and Wildlife and Plum Creek biologists.

Steven K. Pelletier PWS, CWB, LPF

Principal, Environmental Management

Mere Point Boat Launch Evaluations, Permitting, and Testimony, Brunswick, Maine (Project Manager)
Directed wetland habitat assessments and wildlife impact evaluations within terrestrial, riparian, and coastal zones, developed mitigation options and plans, and assisted in state and federal permitting for a controversial public boat launching facility in Casco Bay. Provided expert witness testimony for BEP hearings and public process.

Regional Blanding's Turtle Rapid Habitat Assessment, Southern and Central New Hampshire (Project Manager)
Oversaw landscape analysis, habitat assessment, and survey of Blanding's turtle habitat modeling results in southern and central NH. Developed regional study plan in coordination with NHFGD to assess modeling results of 15 multi-town sites (>1500 acres). Summary finding included summary results of suitable habitat conditions, new observations of Blanding's turtles, and conservation planning/management recommendations to NHFGD.

Integrated Forest (Timber) and Wildlife Management Plans, Maine (Certified/Licensed Professional Forester, Certified Wildlife Biologist)
Developed integrated Forest and Wildlife Management Plans providing commercial and private clients with comprehensive appraisals of current and projected resource values, timber volumes and conditions, in support of a multiple-resource forest management strategy.

Municipal and Private Foundation Forest Management Plans (Certified/Licensed Professional Forester, Certified Wildlife Biologist)
Developed comprehensive forest management plans for towns as well as private land trusts and natural resource organizations interested in public, multiple-resource use. Plans frequently provide extensive natural community, stand-specific flora and fauna documentation and timber and wildlife values, as well as prevailing regulatory information.

Significant Wildlife Habitat Mapping, Central and Southern Maine (Project Manager)
Identified and mapped deer wintering areas, wetlands, and other Significant Wildlife Habitat on behalf of Maine Department of Inland Fisheries and Wildlife throughout 40 towns in southern and central Maine.

Steven K. Pelletier PWS, CWB, LPF

Principal, Environmental Management

PUBLICATIONS

Pelletier, S.K., T.S. Peterson, and G. Kendrick. Gulf of Maine Offshore Bird and Bat Migration Pilot Study. *Speaker Presentation at NWCC Wind Wildlife Research Meeting VIII, Lakewood, Colorado*, 2010.

Pelletier, S.K., A.J. Gravel, and T.S. Peterson. Results of Regional Avian and Bat Migration Pilot Study in the Gulf of Maine. *Speaker Presentation at the AWEA North American Offshore Wind Conference, Atlantic City, New Jersey*, 2010.

Pelletier, S.K., G.J. Giumarro, and T.S. Peterson. Gulf of Maine Offshore Bird and Bat Pilot Study. *Speaker presentation at EnergyOcean International Conference, Ft. Lauderdale, Florida*, 2010.

What's Out There: Atlantic Offshore Bat and Bird Pilot Study 2009 Results. *Presented at AWEA Windpower Conference and Exhibition, Dallas, Texas*, 2010.

Pelletier, S.K.; G.C. Kendrick; T.S. Peterson; and A.J. Gravel. Atlantic Offshore Bird & Bat Pilot Study: 2009 Results. *Poster Presentation at AWEA Offshore Energy Conference, Atlantic City, New Jersey*, 2010.

Pelletier, S.K., G.J. Giumarro, and G.C. Kendrick. Gulf of Maine Offshore Bat and Bird Pilot Study. *Poster Presentation at the AWEA Offshore Wind Project Workshop, Boston, Massachusetts*, 2009.

Pelletier, S.K. Forest biomass – the good, the bad, the ugly. *Speaker Presentation at New England Society of American Foresters Conference; Portland, Maine*, 2009.

Giumarro, G., S. Pelletier, K. Watrous, T. Peterson, and J. Johnson. Seasonal Distribution of Tree Bats in the Northeast Using Passive Acoustic Sampling. *Poster Presentation at AWEA Windpower Conference and Exhibition, Chicago, Illinois*, 2009.

Pelletier, S.K., A.J. Gravel, and T.S. Peterson. Nocturnal avian flight heights relative to risk of collision with wind turbines. *Presented at NWCC Wind Wildlife Research Meeting VII, Milwaukee, Wisconsin*, 2008.

Pelletier, S.K., C.W. Meinke, T.S. Peterson, and A.J. Gravel. Radar and acoustic bat surveys in pre- and post-construction bird and bat mortality monitoring. *Poster Presentation at 2008 AWEA Conference in Los Angeles, California*, 2008.

Radar and Acoustic Bat Surveys in Pre- and Post-Construction Bird and Bat Mortality Monitoring. *Presented at AWEA Windpower Annual Meeting; Houston, Texas*, 2008.

Windpower and Wildlife: Survey Techniques, Impacts, and Future Research. *Speaker Presentation at Hoffman Bird Club Annual Meeting; Pittsfield, Massachusetts*, 2007.

MBTA Greenbush Rail Line - Wildlife Crossing Demonstration Project. *Presented at International Conference on Ecology and Transportation (ICOET); San Diego, California*, 2005.

Giumarrro, G.J. and S.K. Pelletier. Rare Turtle Tracking and Mitigation Associated with Infrastructure Development. *Presented at North American and Natural Resources Conference, Washington, DC*, 2005.

Railroad Crossing Structures for Spotted Turtles. *International Society of Wetland Scientists 25th Anniversary Conference, Charting the Future: A Quarter Century of Lessons Learned; Seattle, Washington; with others*, 2004.

Windpower and Wildlife – Risks and Benefits. *Speaker Presentation at The Wildlife Society New England Fall Meeting*, 2004.

A Survey of Potential Vernal Pool Habitats in the Town of Falmouth, Maine. *Association of State Wetland Managers (ASWM) National Symposium, Wetlands 2003: Landscape Scale Wetland Assessment & Management; Nashua, New Hampshire; with others*, 2003.

Wildlife and critical habitat concerns associated with windpower facilities. *New England Wind Power Siting Workshop; Boston, Massachusetts*, 2001.

Steven K. Pelletier PWS, CWB, LPF
Principal, Environmental Management

A GIS-based Wetland Characterization of the Casco Bay Watershed – A Pilot Study. *Society of Wetland Scientists (SWS) Quebec 2000: Millennium Wetland Event*, 2000.

Biodiversity in the Forests of Maine: Guidelines for Land Management. *UMCE Bulletin #7147, University of Maine Cooperative Extension; with others*, 1999.

An analysis of forest sustainability issues in Maine. *Maine Forest Service and Maine Natural Areas Program*, 1996.

Distribution and abundance of breeding birds and small mammals in the high salt marsh and adjacent upland critical edge in southern Maine. *Maine Biological and Medical Science Symposium; Bowdoin College; Brunswick, Maine; with others*, 1986.

Declaration of Gino Giumarro

1. My name is Gino Giumarro. I am a Certified Wildlife Biologist who works for Stantec Consulting Services Inc. In my capacity as a Certified Wildlife Biologist and Senior Associate I conduct windpower assessments, regional natural resources planning, wildlife management planning, natural resources damage assessments, and permitting. I am responsible for designing field studies, coordinating and performing data collection, and report preparation. I have specialty expertise with bird and bat surveys, with a focus on rare species and habitat restoration. As a Senior Ecologist at Stantec, I oversee windpower impact assessments, Federal Energy Regulatory Commission (FERC) license applications, threatened and endangered species surveys, ecological community characterizations, Natural Resources Damage Assessments (NRDA), biological assessments, Endangered Species Act consultations (relative to Sections 7 and 9), environmental planning, fish and wildlife surveys, and document preparation in accordance with the National Environmental Policy Act (NEPA). My client experience includes a wide array of federal, state, local, and private clients. I am certified by the US Army Center for Health Promotion and Preventative Medicine in the Evaluation of Environmental Noise. A copy of my resume is attached.

2. This declaration is the result of my own research and experience and that of my colleague, Elizabeth Annand. Elizabeth Annand is a Certified Wildlife Biologist and NEPA specialist with 17 years experience in the Natural Resource Management field. She specializes in environmental permitting on the state and federal levels, NEPA documentation for federal actions, and threatened and endangered species protection and management. She conducts regulatory compliance for several natural resource disciplines. Elizabeth has developed her career skills with emphasis on successfully managing various natural resources (animals, plants, etc.) in conjunction with other resource demands (energy, minerals, timber, recreation, etc.). She has a solid understanding of ecological concepts and resource management techniques. This allows her to evaluate projects and aim for implementing environmentally sound alternatives for development. Elizabeth has an exceptionally broad background in the field of integrated wildlife and resource management, and her work experience includes employment with federal and state agencies as well as the private sector. Elizabeth has extensive experience composing and reviewing federal and state environmental permitting documents for projects of all sizes and is well versed in relating ecological principles to rules and regulations. She is also proficient in developing field survey investigations, including data collection, data analysis, and technical reporting. A copy of her resume is attached.

3. I am providing this declaration in support of comments to be filed by the Infrastructure Coalition with respect to the Federal Communication Commission's (FCC) Programmatic Environmental Assessment (PEA) regarding its Antenna Structure Registration Program (ASR). The intent of the authors is to provide context relative to scoping and development of alternatives in the NEPA analysis being conducted. I declare the following to be true and correct based on personal knowledge, information and belief.

4. A PEA or Programmatic Environmental Impact Statement (PEIS) is used when subsequent NEPA analyses and documents may be prepared in tiers (40 C.F.R. § 1508.28) as narrower, more site-specific plans for implementing the proposed action or an alternative are defined. The programmatic process is intended to be used as guidance for subsequent NEPA analyses and decisions that may be needed when more site-specific plans for implementing the selected alternative are defined. The role of the programmatic process is to address broad issues so that the large-scale analyses can be incorporated into subsequent site-specific assessments. A programmatic EA or EIS should support program-level decisions regarding which specific projects will be considered in the future.

5. The Executive Branch Council on Environmental Quality (CEQ) has implementing regulations for conducting NEPA analyses of Federal actions. The CEQ regulations are written with some flexibility with understanding of the vast diversity of Federal agency bureaucratic structures and actions. This flexibility comes in the form of Federal agency implementing regulations. Each Agency implements the CEQ Regulations differently, including specification criteria for determining the specific types of analysis actions. This includes predetermination

of types of activities that would require an Environmental Assessment (EA), Environmental Impact Statement (EIS), or which would be categorically excluded from analysis. This pre-decisional list of criteria differs widely for each agency.

6. The FCC implementation of NEPA differs from many other Federal agencies in their implementation of NEPA in that the FCC is generally not part of the project planning process associated with the proposed action. NEPA analysis is conducted by a variety of independent project proponents for approval and verification by the FCC. All of these independent actions that are driven by market forces make it difficult to plan for and evaluate cumulative impacts without conducting a programmatic assessment. This creates unique circumstances that make it important for the NEPA scoping process to be initiated early, transparently, and with the full inclusion of other partners. The FCC PEA will set the ground rules for further evaluation of applications and registrations under the ASR program. The unique circumstances of the NEPA program implementation by the FCC make the conduct of ASR NEPA analysis a unique circumstance. When conducting new analyses without precedence, federal agencies often conduct intensive scoping made up of experts that assist with the determination of project impacts.

7. The scoping information provided by FCC for the ASR PEA to date has not provided specific alternatives or proposed action for which to provide substantive comments. Therefore, it is difficult to frame the context regarding the normality of this NEPA scoping. This information is generally developed both internally and through communications with Cooperating Agencies.

8. There are many examples of PEAs, however, there are few that have this particular level of controversy. Below are some examples of various PEAs that have been conducted by various agencies. Each of these PEAs are done on a programmatic level, however the scope of analysis is limited to a specific area where scoping failed to produce significant issues that warrant the preparation of a Programmatic EIS.

EXAMPLE #1 - US Army Corps of Engineers
Final Programmatic Environmental Assessment on Allowable Adjacent Landowner Activities Incorporating Ecosystem Management Practices on Federal Lands at Grapevine and Lewisville Lakes, Texas, May 2005
Area of Potential Effect: North Central Texas

Agency Coordination

Prior to the scoping process, USACE coordinated with other agencies and held a workshop to discuss alternatives for the EA.

Public Workshops

In the scoping process, USACE engaged interested localities and members of the public, including homeowner associations and held workshops for developing alternatives.

Public Information and Review

During the scoping process, USACE also sent letters to all members of Fort Worth District's Environmental and Recreation Advisory Committee (ENRAC) list. The letter included copies of the existing mowing, underbrushing and access path guidelines and asked members to provide their comments related to modifying the existing guidelines.

EXAMPLE #2 - U.S. Bureau of Reclamation, May 2003
Mid-Columbia River Steelhead ESU – Action 149 Fish Habitat Improvement Measures Implementation Programmatic EA
Area of Potential Effect: Central Oregon

Prior to formal scoping activities, the Bureau's "Advance Team" (Bureau staff with experience in habitat-related and public-outreach actions) visited the area and met with a wide variety of interested members of the public. These meetings helped to determine local concerns, identify potential partners and information sources, and quantify and define ongoing local efforts.

Thereafter, the Bureau initiated public scoping for this habitat improvement program on March 11, 2002. This scoping effort involved a meeting of 26 people, representing 13 organizations, with an interest in habitat improvement activities in one or more of the three subbasins. The scoping period ended on April 12, 2002. During that month-long period, one written comment was received. Also during this period, the Bureau's Subbasin Liaison made contact with private individuals and others within the subbasins.

Several issues, both within and outside the scope of this PEA, were identified during the scoping period. Each issue was identified, then evaluated against two criteria: 1. Is the issue consistent with the purpose and need for the proposed action?, and 2. Is the issue within the management constraints?

The scoping process clarified the issues and alternatives to be included in the PEA.

EXAMPLE #3 - BLM Cedar City Oil and Gas Leasing (Eastern Portion) Programmatic EA
Area of Potential Effect: Southern Utah

This project was posted on the BLM's Environmental Notification Bulletin Board (ENBB) on April 16, 2008 and a notice of EA availability was posted on May 23, 2008. A 30-day public comment period was held – beginning on June 1, 2008 – and a public meeting was held in Cedar City during the 30-day public comment period.

Prior to public scoping an Interdisciplinary Team (ID Team) of resource professionals was assembled by the Cedar City Field Office. During the preparation of this EA, the ID Team worked to identify environmental issues and resource concerns for the area being considered for oil and gas leasing in Southern Utah.

9. These examples demonstrate that other agencies engage in an active, multi-stage scoping process in which the agency discloses and refines the alternatives and objectives that are to be considered in the programmatic environmental assessment, even when the program affects only a limited area. When, as here, the program is applicable nationally, a detailed, iterative scoping process is even more important.

I declare the foregoing to be true and correct under penalty of perjury.

Gino Giumarro

Executed: 1/14/11

Gino J.M. Giumarro

Senior Associate, Certified Wildlife Biologist

Mr. Giumarro is a Certified Wildlife Biologist and Senior Associate with extensive experience in windpower assessments, regional natural resources planning, wildlife management planning, natural resources damage assessments, and permitting. He is responsible for designing field studies, coordinating and performing data collection, and report preparation. He has specialty expertise with bird and bat surveys, with a focus on rare species and habitat restoration.

As a Senior Ecologist, Mr. Giumarro oversees windpower impact assessments, FERC license applications, threatened and endangered species surveys, ecological community characterizations, NRDA, biological assessments, Section 7 consultations, environmental planning, fish and wildlife surveys, and document preparation in accordance with the NEPA.

Mr. Giumarro's client experience includes a wide array of federal, state, local, and private clients. He is certified by the US Army Center for Health Promotion and Preventative Medicine in the Evaluation of Environmental Noise.

PROFESSIONAL EXPERIENCE

- Stantec Consulting. 2007-present. Senior Associate, Certified Wildlife Biologist.
- Woodlot Alternatives, Inc. 2003-2007. Senior Project Manager, Director of Ecological Services, Certified Wildlife Biologist.
- e2M, Inc., Washington, DC. 2000-2003. Wildlife Biologist.
- University of VT/USFWS. 1998-2000. Human Dimensions of Wildlife Biology Specialist.
- Maine Audubon Society. 1998. Avian Biologist.
- The Chewonki Foundation. 1996-1998. Wildlife Ecologist.
- The Trustees of Reservations. 1994-1996. Wildlife Biologist.

EDUCATION

MS, Natural Resources Planning, University of Vermont, Burlington, Vermont, 2000

BS, Wildlife Biology, University of Massachusetts, Amherst, Massachusetts, 1995

40-Hour Hazwoper Certification, OSHA, Topsham, Maine, 2010

PROFESSIONAL ASSOCIATIONS

Environmental Planning, Siting and Permitting Workgroup, Great Lakes Wind Collaborative

Member, National Military Fish and Wildlife Association

Member, Cornell Lab of Ornithology

Member, Society of American Foresters

Member, The Wildlife Society

Northeast Board Member, Wildlife Restoration Group, The Wildlife Society

** denotes projects completed with other firms*

Gino J.M. Giumarro

Senior Associate, Certified Wildlife Biologist

PROJECT EXPERIENCE

Environmental Assessments

Environmental Assessment for Habitat Conservation Planning, Colorado* (Project Scientist)

Drafted NEPA Environmental Assessment for the Habitat Conservation Planning for the threatened Preble's Meadow Jumping Mouse in four Colorado counties. Determined baseline noise conditions and evaluated the environmental consequences of noise on Preble's as a result of the Proposed Action, evaluated compliance with state and federal regulations including Endangered Species Act.

Environmental Assessment for Beddown of C-17 Aircraft, South Carolina* (Project Scientist)

Proposed Action included base infrastructure modifications, military airspace, and training areas to enable aircrews to perform readiness training operations and ensure that tactical low-altitude, airdrop, and re-supply mission requirements for C-17 aircraft were met and sustained. Served as primary author for affected environment and environmental consequences for the following sections: noise, water resources, biological resources, visual resources, socioeconomics, and environmental justice.

Wind Cave National Park Boundary Expansion EA, South Dakota* (Project Scientist)

Served as author and technical lead for biological resources components during the preparation of the NEPA Environmental Assessment of expansion of this national park, including scoping, DOPAA, IICEP, Draft EA, and Final EA.

Integrated Deepwater System Program EIS, Nationwide* (Technical Lead)

Mr. Giumarro developed a NEPA EIS for implementation of Integrated Deepwater System Program, the largest and most innovative acquisition program in Coast Guard's history focused on upgrading and replacing its full range of assets – cutters, aircraft, sensors, communications, and logistics. Served as primary author for the affected environment and environmental consequences sections for protected and sensitive habitats, marine mammals and sea turtles, sensitive coastal and marine birds.

Natural Resource Services

Record Hill Wind Farm, Maine

Mr. Giumarro acted as Senior Ecologist for the Record Hill wind project, which is a 22-turbine, 55 MW wind project on a forested ridge environment in the western Maine mountains. For this project, he coordinated planning and feasibility studies, wetland delineations, wildlife impact studies, noise and visual impact assessments, and helped to coordinate all state and federal environmental permitting.

Lempster Wind Project, New Hampshire

As the Senior Ecologist, Mr. Giumarro was responsible for coordinating and conducting environmental surveys and assisted in permitting for this 24 MW wind project, the first in New Hampshire. Tasks included developing and negotiating work plans with agencies, performing avian and bat studies, rare species investigations, vernal pool surveys, and providing testimonial support. Mr. Giumarro was also involved in the development of post-construction monitoring protocols for the project.

Stetson Mountain Wind Farm, Washington County, Maine

Stetson is a 57 MW generation facility consisting of 38 turbines on a 6.5-mile, low-elevation ridge in Washington County, Maine. Mr. Giumarro supervised avian and bat studies during the planning process and assisted in the design of the post-construction avian monitoring program.

** denotes projects completed with other firms*

Gino J.M. Giumarro

Senior Associate, Certified Wildlife Biologist

Granite Reliable Wind Park, Coos County, New Hampshire

Mr. Giumarro has acted as the Senior Ecologist on this long-term project supervising and conducting a variety of natural resource surveys to assess potential concerns raised by the proposed project. Surveys included several seasons of nocturnal radar surveys, a winter track survey to document occurrence of American marten (state threatened) within the project site, wetland and vernal pool reconnaissance surveys, multiple seasons of acoustic bat surveys, rare plant surveys, a raptor migration survey, and a Natural Community Characterization. Stantec also gave several agency presentations to summarize the multiple seasons of environmental surveys and their implications for the project. Stantec is currently involved in the permitting process by providing expert witness testimony.

Hounsfield Wind Farm, Galloo Island, New York

As Senior Ecologist for the nocturnal migration surveys conducted to determine site suitability, Mr. Giumarro negotiated and designed a marine radar survey reflective of the unique location of this island site. Solutions to transport, maintenance, and site coverage were carefully determined in order to produce one of the most extensive migration surveys to date, successfully documenting avian abundance, flight patterns, and flight altitudes surrounding the site. Mr. Giumarro and his project team were praised for their thoroughness and insights provided to state agencies.

Electrical Substation and Transmission Line Upgrades, Jay and Rumford, Maine

Senior Ecologist. Managed field survey of wetland boundaries, potential streams, Significant Vernal Pools, and Wetlands of Special Significance under the jurisdiction of the MDEP based on the criteria of the Maine Natural Resources Protection Act. Stantec also coordinated town permitting requirements in Jay and will be preparing town, state, and federal permit applications for improvements proposed in Rumford in 2009.

Marbled Salamander Habitat Assessment and Surveys, Randolph, Massachusetts

Senior Ecologist. Conducted assessment of suitable habitat conditions, aquatic larval/amphibian egg mass surveys, and drift fence/pit-fall trap surveys for marbled salamanders at the site of a proposed commercial expansion project. Presented results and permitting recommendations to the client and agency to comply with MESA while the project underwent MEPA review.

Umber Shadowdragon, Arrow Clubtail, and Blanding's Turtle Habitat Assessment, and Blanding's Turtle Nesting Surveys, Massachusetts

Senior Ecologist. Conducted assessment of habitat conditions for dragonflies and Blanding's turtle. Conducted turtle nesting surveys to evaluate nest site selection on-site. Presented results to agency and coordinated project design modifications and mitigation recommendations to the client for compliance with MESA.

Ringed Boghaunter Habitat Assessment, North Smithfield, Rhode Island

Senior Ecologist. Conducted an assessment of habitat conditions at the site of a large proposed commercial project. Provided impact analysis and mitigation design recommendations to client. Also provided third party review of the initial habitat assessment.

Norwottuck Rail Trail Rehabilitation Project, Hadley, Northampton, and Amherst, Massachusetts

Senior Ecologist. Conducted natural community, general wildlife, and rare species habitat assessments within the 11-mile rail trail corridor. Evaluated habitat conditions for 19 state-listed rare wildlife and plant species documented by the NHESP and provided impact minimization recommendations to the engineer to comply with MESA. Evaluated current beaver damage to the rail trail corridor and developed a beaver management plan in accordance with MWPA and MESA performance standards.

** denotes projects completed with other firms*

Gino J.M. Giumarro

Senior Associate, Certified Wildlife Biologist

Spotted Turtle Habitat Assessment and Surveys, Marshfield, Massachusetts

Senior Ecologist. Conducted an assessment of suitable habitat conditions and visual surveys for spotted turtles at the site of a proposed major commercial and residential development. Assisted with the development of wildlife crossing structure and exclusion barrier design and placement. Coordinated project planning and mitigation design with local and state agencies in compliance with MESA.

Eastern Box Turtle Protection Plan, Construction Monitoring, and Relocation, Duxbury, Massachusetts

Senior Ecologist. Developed and coordinated approval of a protection plan to protect box turtles during construction in compliance with MESA. Plan included methodology for pre-construction searches, construction monitoring, turtle handling/relocation, and habitat management/enhancement for duration of project. Summary results presented in report to the NHESP.

Diamondback Terrapin Habitat Assessment and Nesting Surveys, Southern Massachusetts

Senior Ecologist. Conducted an assessment of suitable habitat conditions and visual surveys to evaluate mating and nesting activities of a newly discovered diamondback terrapin population at a former landfill proposed for mixed use development. Evaluated project designs and presented impact minimization and mitigation recommendations to comply with MESA. Recommendations and response to reviewer comments also provided during MEPA review.

Regional Blanding's Turtle Rapid Habitat Assessment, Southern and Central New Hampshire

Senior Ecologist. Conducted and managed landscape analysis, habitat assessment, and field survey of Blanding's turtle habitat modeling results in southern and central New Hampshire. Developed regional study plan in coordination with the New Hampshire Fish and Game Department to assess modeling results of 15 sites (>1500 acres). Results evaluated suitable habitat conditions, new observations of Blanding's turtles, and conservation planning and management recommendations.

Indiana Bat Habitat Assessment, Jefferson and Oswego Counties, New York

Senior Ecologist. Prepared a habitat assessment to evaluate suitable habitat conditions for Indiana bat day-time and maternal roosting along a proposed 42.5 mile transmission line. Also conducted a landscape analysis and field survey of natural communities along the transmission line corridor. Results were used for project planning with objective to avoid and minimize resource impacts.

Timber Rattlesnake and Eastern Copperhead Protection Plan and Surveys, Massachusetts

Senior Ecologist. Prepared rare snake protection and relocation plan in coordination with the NHESP, the client, and construction contractors. Conducted pre-construction surveys of the project site with the goal of capturing and relocating state-listed rare snakes inside construction zone.

New Hampshire ATV Policy Development and Trail Planning, New Hampshire

Senior Ecologist. Assisted with the research and development of statewide ATV Trail Plan to address dramatic growth in ATV use throughout NH. Plan inventoried existing trails open to the public, including trail length and condition, organizations responsible for maintenance, funding levels, and estimated use. Stantec then identified sites for strategic acquisition and trail development by the state, reviewed the environmental sensitivity of these sites, and assessed the level of funding necessary for purchases of land, easements, and rights-of-way. Stantec also evaluated the state's statutory process for development of ATV trails on public lands.

Natural Resource Services, New England

Senior Ecologist and Project Manager. Conducted reconnaissance assessment and survey of terrestrial and aquatic systems at numerous project sites throughout New England to identify and characterize suitable habitat conditions for a variety of rare, threatened, and endangered species; rare or exemplary natural resources; wetland resources; potential vernal pools; and natural communities. Determinations of applicability were provided to clients to assist with their project planning and permit applications in compliance with applicable local, state, and federal natural resource regulations.

** denotes projects completed with other firms*

Gino J.M. Giumarro

Senior Associate, Certified Wildlife Biologist

Post-construction Avian and Bat Mortality Monitoring at Forward and Lookout Wind Projects, Somerset County, Pennsylvania

Senior Ecologist in charge of post-construction bird and bat mortality surveys at two operational wind projects in southwest Pennsylvania, including daily mortality surveys, acoustic bat surveys, and diurnal raptor surveys. Coordinated communications with state wildlife agencies.

Indiana Bat Mist Netting Surveys for Grandpa's Knob Windpark, Rutland County, Vermont

Senior Ecologist in charge of Indiana bat mist netting surveys. Developed survey strategy in coordination with Vermont Fish and Wildlife Department, US Fish and Wildlife Service, and the client. Conducted surveys in accordance with federal protocol. Assisted with bat acoustic monitoring at project site. Coordinated and lead regular meetings between client and state and federal biologists, analyzed acoustic and mist netting survey data, prepared reports.

Riverbank Wiscasset Energy Center, Wiscasset, Maine

Mr. Giumarro served as the Project Manager, Client Lead for the development of a pumped storage hydroelectric project. This included acting as the technical lead in the preparation of the FERC licensing documentation, resource surveys and natural resources surveys. The Project is a 1,000-megawatt pumped storage hydroelectric project. The principal project works include an upstream reservoir and an underground downstream reservoir (2,200 feet underground) with a capacity of 1.23 billion gallons. Mr. Giumarro also served to aid the project team in minimizing project impacts on the environment and served as the liaison for developing and implementing work plans to evaluate project impacts. Mr. Giumarro is also the lead in preparing the Maine Waterway Development and Conservation Act (MWDCA) permit. The project is currently in the permitting process with the FERC and the State of Maine. Stantec worked with Riverbank to prepare the Preliminary Application Document (PAD), MWDCA permit, and is currently assisting with development of the FERC license application. Stantec is also in the process of conducting fisheries evaluations, dive surveys, deer wintering area characterizations, wetland delineations, rare species surveys, benthic habitat characterizations, and hydraulic modeling.

Wind Farm Development Surveys and Risk Assessments, New York, New Hampshire, Vermont, Maine, Virginia, West Virginia, and Pennsylvania

Mr. Giumarro has managed pre-construction wind farm development surveys and risk assessments at multiple sites throughout New England, New York, and the mid-Atlantic. These assessments include site prospecting for wind farms, landscape analyses, fatal flaw analyses, neotropical migrant surveys using marine radar, acoustic bat surveys, breeding bird surveys, bat mist netting, raptor surveys, and ecological community characterization. Mr. Giumarro has effectively served as liaison between clients and regulatory agencies to insure that studies and monitoring plans are in accordance with federal and state guidelines. Study results and determinations of risk have been provided to clients to assist with their project planning and permit applications in compliance with applicable local, state, and federal natural resource regulations. In addition, Mr. Giumarro has aided in the development of a weight-of-evidence approach to risk assessments specifically for wind farms. This risk assessment approach was presented to the annual conference of the Wildlife Society in Tucson, AZ.

** denotes projects completed with other firms*

Gino J.M. Giumarro

Senior Associate, Certified Wildlife Biologist

Downeast LNG Ecological Characterization and Permitting, Robbinston, Maine

Mr. Giumarro was the Project Manager and Lead Ecologist for Downeast LNG's construction of a liquefied natural gas (LNG) import terminal and natural gas pipeline in eastern Maine. Mr. Giumarro directed all field work and was the primary author of all permitting documentation, FERC application materials, Biological Assessments (USFWS and NMFS), and directed the overall site prospecting and selection process. Stantec was retained to assist the client in evaluating environmental resources and potential impacts, prepare FERC documentation, serve as a liaison with natural resource agencies, and coordinate state and local environmental permitting for the project, which includes a 47-acre port facility and a 30-mile natural gas pipeline. The proposed development includes an associated pier facility extending approximately 3,300 feet from shore into Passamaquoddy Bay.

Stantec conducted an extensive site characterization including detailed marine and terrestrial habitat surveys, rare species studies, wetland mapping and functional assessments, Essential Fish Habitat studies, marine mammal habitat evaluations, development of potential gas pipeline corridors, and reviews of regulatory requirements for state and federal environmental permitting. Stantec also conducted detailed wetland and rare species field evaluations along the pipeline corridor alternatives. Mr. Giumarro directed the preparation of Biological Assessments for Atlantic Salmon, bald eagles, and marine mammals with the USFWS and NMFS.

Acadia Gateway Intermodal Facility Environmental Assessment, Trenton, Maine

Mr. Giumarro was the Project Manager Ecologist for fieldwork and preparation of the natural resources portions of the Environmental Assessment. The Maine DOT is working with Acadia National Park, Federal Transit Authority, and Friends of Acadia in planning the development of a combined intermodal transportation facility and Acadia National Park welcome center in Trenton, Maine. The project is intended to reduce traffic and automobile use within the Park and in Bar Harbor through increased use of the Island Explorer bus service. Mr. Giumarro worked closely with the project planners and engineers in evaluating natural resources at the site, assessing impacts, developing a master plan, drafting a NEPA Environmental Assessment, and planning permit strategies and mitigation options.

Mr. Giumarro completed initial project tasks for the project including conducting literature reviews and performing environmental characterizations of the site with regard to natural communities, wildlife, and rare species. Stantec also conducted additional field surveys to map and assess wetlands, document wildlife use of the site, evaluate rare species occurrences, develop functional assessments of wetlands, and determine potential on-site mitigation opportunities. Mr. Giumarro also performed impact assessments for the project were performed under the requirements of NEPA, National Park Service Director's Order 12 and Handbook, and the USACOE Highway Methodology.

** denotes projects completed with other firms*

Gino J.M. Giumarro

Senior Associate, Certified Wildlife Biologist

Mount Rushmore National Memorial Air Tour Management Plan Environmental Assessment, South Dakota

The National Parks Air Tour Management Act of 2000 (NPATMA) was signed into law on April 5, 2000, and applies to any person who applies to the Federal Aviation Administration (FAA) for operating authority to conduct a commercial air tour operation over a unit of the national park system, over tribal lands that are within or abutting a unit of the national park system, or any area within ½-mile outside a unit of the national park system.

The NPATMA requires the FAA, in cooperation with the National Park Service (NPS), to develop an Air Tour Management Plan (ATMP) for each unit of the park system or tribal land that does not have a plan in effect at the time a person applies for FAA authority to conduct such an operation.

Two air tour operators have applied to the FAA for operating authority to conduct commercial air tour operations at Mount Rushmore National Park (the Park). Prior to implementation of an ATMP, the FAA must comply with the National Environmental Policy Act of 1969 (NEPA) and other related NEPA laws and regulations. The FAA, in cooperation with the NPS, determined that an environmental assessment (EA) would be initiated for the Park ATMP for NEPA purposes.

Mr. Giumarro assisted with preparation of the EA for this ATMP, which included development of the affected environment on biological resources and land use sections, environmental consequences on biological resources and land use sections, and cumulative impacts on biological resources section. This project included application of a wide body of science on the environmental effects of noise.

Badlands National Park Air Tour Management Plan Environmental Assessment, South Dakota

The National Parks Air Tour Management Act of 2000 (NPATMA) was signed into law on April 5, 2000. The NPATMA applies to any person who applies to the Federal Aviation Administration (FAA) for operating authority to conduct a commercial air tour operation over a unit of the national park system, over tribal lands that are within or abutting a unit of the national park system, or any area within ½-mile outside a unit of the national park system.

The NPATMA requires the FAA, in cooperation with the National Park Service (NPS), to develop an Air Tour Management Plan (ATMP) for each unit of the park system or tribal land that does not have a plan in effect at the time a person applies for FAA authority to conduct such an operation.

Two air tour operators have applied to the FAA for operating authority to conduct commercial air tour operations at Badlands National Park (the Park). Prior to implementation of an ATMP, the FAA must comply with the National Environmental Policy Act of 1969 (NEPA) and other related NEPA laws and regulations. The FAA, in cooperation with the NPS, determined that an environmental assessment (EA) would be initiated for the Park ATMP for NEPA purposes.

Mr. Giumarro assisted with EA preparation for this ATMP, which included development of the affected environment on biological resources and land use sections, environmental consequences on biological resources and land use sections, and the cumulative impacts on biological resources section. This project included application of a wide body of science on the environmental effects of noise.

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Gino J.M. Giumarro

Senior Associate, Certified Wildlife Biologist

NASA Wallops Island Flight Facility Bat Evaluation, Wallops Island, Virginia

Mr. Giumarro conducted bat acoustical surveys during the Fall 2008 migration period. Bat acoustic data were used to characterize bat presence in the project area and allow for some identification of bat species or guilds. These data provided an index of bat activity between migration and breeding periods and will help determine whether seasonality affects bat activity.

Echolocation calls were identified to species level whenever possible (i.e., when clear call sequences of certain species were recorded). Tree-roosting migratory bats are typically easy to identify to species, while those of the genus Myotis are not. Bat calls were identified to guild, although some calls were provisionally categorized to species when possible. Mr. Giumarro reviewed Stantec's regional database of bat calls to aid in the interpretation of results through use of filtering software. Bat detector data were summarized for each detector for each night (i.e., number of calls by species or species group per hour). These estimates were provided for each sampling site and, when sufficient data was available, for each canopy height within each sampling site. Call rates by species, as well as total detections and trends in species presence, were reported. Comparisons between call rates and species composition were also compared between the three detectors. Mr. Giumarro compiled and evaluated data obtained for the acoustic survey and produced a report summarizing the results.

Ecosystem Management Application and Vegetative Surveys, Wisconsin*

Mr. Giumarro was the Project Manager, conceptual designer, and primary author for the preparation of an Ecosystem Management Application for the ANG. Mr. Giumarro led the development, data collections, and performed the analyses for classification on the three installations according to the National Vegetation Classification Standards. Based upon this foundation, Mr. Giumarro designed a spatially related database that focuses on research related to natural history and ecology of plants and wildlife known to occur within the area. In conjunction with quantitative surveys and background research, habitat associations were developed that allow for ANG natural resources managers to compile spatial inventories of select areas as well as manage toward specific ecosystem forms and functions. As part of this process, Mr. Giumarro designed an online interface that allows all installation personnel to perform analyses without a need for formal training in GIS technology. In addition, the application allowed for analysis of ecosystem stressors through an application of an ecosystem stressor matrix designed provide for the mitigation of such stressors.

** denotes projects completed with other firms*

Gino J.M. Giumarro

Senior Associate, Certified Wildlife Biologist

Simplified Natural Resource Damage Assessment for Sites Involving Injury to Groundwater and Wetlands, Massachusetts

Mr. Giumarro assisted in preparation of the draft Simplified Natural Resource Damage Assessment for Sites Involving Injury to Groundwater and Wetlands, which identified several characteristics a site must have to qualify for the simplified approach to assess natural resources damages. These criteria first establish whether a site is appropriate for any type of damage assessment, including:

• Have natural resources been impacted by contamination at this site?
• Does the site have health or environmental risks that remain to be addressed one year after the State was notified of the release (i.e., is the site tier classified)?
• Does this site fit the requirements for statute of limitations?
• Is there a viable responsible party?
• Is the site well characterized? Does enough data exist to quantify injury?

If the site meets the above criteria, it may be amenable to a simplified natural resource damage assessment. The following additional criteria should assist in determining whether the simplified approach can be used:

• Is the site "complex"?
• Have impacts to resources other than groundwater or wetlands been identified?
• Did the spill result in the discontinuation of use of a public water supply well or private well?

For the simplified approach to be successful, these questions must be ascertained from existing data collected during site characterization. This report serves as the baseline for assessing damages to wetlands in MA assessing damages to wetlands in Massachusetts as part of their Natural Resources Damage Assessment (NRDA) Program.

Gino J.M. Giumarro

Senior Associate, Certified Wildlife Biologist

PUBLICATIONS

Giumarro, G.J., K.S. Watrous, T.S. Peterson, S.A. Boyden, M.J. Lacki, and J.S. Johnson. Seasonal and geographic trends in acoustic detection of tree-roosting bats. *Presented at the Windpower 2010 Conference and Exhibition, Dallas, Texas*, 2010.

Giumarro, G.J., K.S. Watrous, T.S. Peterson, S.A. Boyden, and J.S. Johnson. Seasonal and geographic trends in acoustic detection of tree-roosting bats. *Presented at the NWCC Wind Wildlife Research Meeting VIII, Lakewood, Colorado*, 2010.

Giumarro, G., J.S. Johnson, T.S. Peterson, K.S. Watrous, and S. Boyden. Summary of Seasonal Distribution of Migratory Tree Bats in the Northeastern United States Using Passive Acoustic Sampling. *Presented at the 1st International Symposium on Bat Migration. Berlin, Germany*, 2009.

Giumarro, G., and D.K. Tong. Environmental Benefits of Tidal Pumped Storage Energy Generation: A Case Study from Riverbank Wiscasset Energy Center, Maine. *Presented at the Energy Ocean Conference. Rockland, Maine*, 2009.

Giumarro, G. and A. Gravel. Assessing The Risk Of Avian And Bat Mortality At Commercial Wind Farms. *Presented at the Windpower 2009 Conference and Exhibition, Chicago, Illinois*, 2009.

Giumarro, G., S. Pelletier, K. Watrous, T. Peterson, and J. Johnson. Seasonal Distribution of Tree Bats in the Northeast Using Passive Acoustic Sampling. *Poster Presentation at the Windpower 2009 Conference and Exhibition, Chicago, Illinois*, 2009.

Pelletier, S.K., G.J. Giumarro, and G.C. Kendrick. Gulf of Maine Offshore Bat and Bird Pilot Study. *Poster Presentation at the AWEA Offshore Wind Project Workshop, Boston, Massachusetts*, 2009.

Giumarro, G. Understanding of Risk to Long Distance Migrating Bats in Canada Using an Ecological Risk Assessment Framework. *Presented at CanWEA, Wind Matters, Wind Project Siting Seminar, Halifax, Nova Scotia*, 2009.

Pelletier, S., G. Kendrick, G. Giumarro, T. Peterson, and A. Gravel. Gulf of Maine Offshore Bat and Bird Project. *Poster Presentation at AWEA Offshore Energy Conference; Boston, Massachusetts*, 2009.

Giumarro, G and J. Lortie. Using Ecological Risk Assessment to Characterize Risks to Birds and Bats at Wind Farms. *Presented at the Wildlife Society Annual Conference. Tucson, Arizona*, 2007.

Giumarrro, G.J. and S.K. Pelletier. Rare Turtle Tracking and Mitigation Associated with Infrastructure Development. *North American and Natural Resources Conference, Washington, DC*, 2005.

Giumarro, G. The Indirect Ecosystem Benefits of Mission Required Prescribed Burns: A Case Study from Hardwood Air National Guard Range, Wisconsin. *National Military Fish and Wildlife Association Conference, Spokane, Washington*, 2004.

Giumarro, G. The Ecopsychology of the Department of Defense: understanding organizational motives and future direction of natural resources management. *College of the Atlantic, Bar Harbor, Maine*, 2003.

Gino J.M. Giumarro

Senior Associate, Certified Wildlife Biologist

Giumarro, G.J., D. Gonnering, and B. Hoppy. Rural Encroachment: Conflicts between Natural Resources Management on Military Lands and Agricultural and Wildlife Management Area Objectives. *National Military Fish and Wildlife Association Conference, Dallas, Texas*, 2001.

Giumarro, G.J. and W.F. Kuentzel. User Perceptions of Nonconsumptive Wildlife Recreation: Have Vermont Users Redefined the Wildlife Watching Experience?. *International Symposium on Society and Resource Management, Western Washington University, Bellingham, Washington*, 2000.

Giumarro, G.J. and W.F. Kuentzel. The 2000 Watchable Wildlife Survey. *Vermont Department of Fish and Wildlife*, 2000.

Giumarro, G.J. and W.F. Kuentzel. 2000 Vermont Angler Survey. *Vermont Department of Fish and Wildlife*, 2000.

Giumarro, G.J. A Handbook for Natural Resource Planners. *University of Vermont*, 2000.

Presented with fellow students of Integrated Analyses of Natural Resource Issues. Comparing Integrated Frameworks for Defining Environmental Implications of Sprawl. *Conference of the Society and Human Ecology, McGill University, Montreal, Canada*, 1999.

Jones, J.J., G. Giumarro, and K. Williamson. 1998 Piping Plover and Least Tern Project Report. *Maine Audubon Society*, 1999.

Elizabeth M. Annand

Project Manager

Elizabeth Annand is a Certified Wildlife Biologist with 17 years experience in the Natural Resource Management field. She specializes in environmental permitting on the state and federal levels, NEPA documentation for federal actions, and threatened and endangered species protection and management. She is capable of conducting regulatory compliance for several natural resource disciplines. Elizabeth has developed her career skills with emphasis on successfully managing various natural resources (animals, plants, etc.) in conjunction with other resource demands (energy, minerals, timber, recreation, etc.). She has a solid understanding of ecological concepts and resource management techniques. This allows her to evaluate projects and aim for implementing environmentally sound alternatives for development.

Elizabeth has an exceptionally broad background in the field of integrated wildlife and resource management, and her work experience includes employment with federal and state agencies as well as the private sector. Elizabeth has extensive experience composing and reviewing federal and state environmental permitting documents for projects of all sizes and is well versed in relating ecological principles to rules and regulations. She is also proficient in developing field survey investigations, including data collection, data analysis, and technical reporting. She is a veteran field scientist and has conducted work in six regions of the United States. She continues to provide valuable field and document support for the extensive efforts associated with pre-construction review for several proposed wind resource areas in the Northeast.

EDUCATION

MS, Wildlife Biology, University of Missouri, Columbia, Missouri, 1995

BS, Biology and Wildlife Management, Delaware State College, Dover, Delaware, 1991

Bat Acoustic Monitoring/Bat Conservation & Management Certification, Bat Conservation International, Austin, Texas, 2005

40-hr Surface Mine Worker Training, Mine Safety & Health Administration, Gillette, Wyoming, 2008

Wildlife Hazard Management at Airports Certification, Embry-Riddle Aeronautics University, Daytona Beach, Florida, 2008

Hazwoper Certification, OSHA, Topsham, Maine, 2010

REGISTRATIONS

Certified Wildlife Biologist #25063, The Wildlife Society

PROFESSIONAL ASSOCIATIONS

Member, The Wildlife Society

Member, The Wildlife Society, Maine

PROJECT EXPERIENCE

Natural Resource Services

Wells Harbor Dredge Project, Wells, Maine

Stantec is providing scientific and regulatory support for permitting a proposed dredge and beach nourishment project. As Project Manager, Elizabeth's tasks include biological resources assessment and project effects analyses. She also serves as the Regulatory Specialist for this project. She coordinates state and federal agency participation in the project and has prepared all attachments for the state NRPA and federal CWA permit applications.

Elizabeth M. Annand

Project Manager

Downeast LNG, Robbinston, Maine

Stantec is the lead consultant in providing permitting assistance for an LNG terminal, regasification facility, and 30-mile send-out pipeline in Washington County, Maine. As Project Scientist, Elizabeth directed field investigations and provided chief assistance in the preparation of the FERC and State of Maine applications for the project.

Skowhegan Transportation Corridor Study, Skowhegan, Maine

Stantec is assisting the lead consultant in the preparation of the EIS for the Maine DOT's proposed by-pass. As Project Manager, Elizabeth is a preparer for EIS sections addressing resources in the physical and biological environments.

Bear River Migratory Bird Refuge EA and BA, Utah

Project involved improved access road to refuge. Elizabeth prepared Wildlife Resource and Threatened and Endangered Species Sections for Project EA. She also prepared the Biological Assessment. Project effects analysis included bald eagle and fat-whorled pondsnail.

Mount Rushmore and Badlands National Parks Air Tour Management Plan EAs, South Dakota

Stantec is providing assistance in developing natural resource sections of an Environmental Assessment evaluating multiple alternatives for commercial air tour operations at Mt. Rushmore National Memorial and Badlands National Park. As Technical Lead, Elizabeth's tasks include natural resource data compilation and noise impacts analysis on wildlife and habitats under federal regulations including the NEPA, Endangered Species Act, and Wilderness Act.

Cape Wind Energy Project EIS and BA, Massachusetts

Stantec participated in the federal environmental permitting effort for a wind resource area in Nantucket Sound, Massachusetts. As Project Scientist and Regulatory Specialist, Elizabeth was instrumental in preparing, reviewing, and responding to comments on the avian sections for the EIS and Biological Assessment.

Hudson River Avian Impact Studies, New York

Stantec designed and carried out extensive bird surveys and egg collection efforts for the USFWS, covering 60 miles of the Hudson River in New York State. As Project Scientist, Elizabeth conducted field work to collect and process wild songbird eggs as part of the Natural Resources Damage Assessment for the river to evaluate impacts associated with contaminated sediments.

Natural Resource Damage Assessment, Massachusetts

Stantec assisted the lead consultant in preparing a simplified approach for conducting natural resource damage assessment for wetlands affected by hazardous materials releases. As a co-author, Elizabeth researched and designed a method for assigning monetary value for affected wetlands. Research included an economic analysis and an investigation of affected wetlands in Massachusetts. Project was conducted in support of the Massachusetts Contingency Plan.

Knox County Airport, Owls Head, Maine

Stantec is the lead consultant for the Knox County Airport expansion project. As Project Scientist, Elizabeth is conducting a wildlife hazard assessment for the airport. She is also preparing a management plan to reduced wildlife hazards that are a potential threat to landing and departing aircraft at the airport.

Jackson Hole Resort EA and BA, Wyoming

Project involved additional and upgraded trails and helicopter skiing option. Elizabeth prepared Wildlife Resource, Threatened and Endangered Species, and Biodiversity Sections for Project EA. She also prepared the Biological Assessment for federal threatened and endangered species and Biological Evaluation for US Forest Service sensitive species. Project effects analysis included the following species: grizzly bear, Canada lynx, and wolverine.

Bangor Landing BA, Bangor, Maine

Stantec provided assistance for permitting limited remedial dredging and construction of a NAPL trapping cap at Bangor Landing. As Project Scientist and Regulatory Specialist, Elizabeth co-authored the Biological to assess the impact of the project on the endangered shortnose sturgeon and Atlantic salmon.

Elizabeth M. Annand

Project Manager

Coalbed Methane Development EIS, Colorado

Elizabeth was on a team of third-party reviewers for a programmatic EIS for a coalbed methane project in Southern Colorado. She reviewed sections on Wildlife, Vegetation, and Threatened and Endangered Species, and she also reviewed the Biological Assessment. Project effects analysis included the following species: bald eagle, southwestern willow flycatcher, Colorado pikeminnow, razorback sucker, and several plants (cacti, milkvetch, etc.).

Sugarbush Development and Improvement Project EA and BA, Vermont

Project involved trail and lodge improvements at the resort. Elizabeth prepared Revised Biological Assessment for federal threatened and endangered species and Biological Evaluation for US Forest Service sensitive species. Project effects analysis included the following species: Indiana bat, small-footed bat, sand several odonates and plants.

Loon Mountain Ski Resort Expansion and Development EIS and BA, New Hampshire

Project involved upgraded trails and new mountain development. Elizabeth prepared Wildlife Resource, Threatened and Endangered Species, and Biodiversity Sections for Project EIS. She also prepared Biological Assessment for federal threatened and endangered species and Biological Evaluation for US Forest Service sensitive species. Project effects analysis included the following species: Indiana bat, small-footed bat, Canada lynx, American marten, and several plants.

Brewer Module Facility BA, Brewer, Maine

Stantec provided assistance for permitting a module fabrication facility on the Penobscot River. As Project Scientist and Regulatory Specialist, Elizabeth co-authored the Biological Assessment that addressed endangered short-nosed sturgeon and Atlantic salmon.

Hoosac Wind Project, Massachusetts

Stantec is providing assistance in the environmental permitting of a wind resource area in Florida and Monroe, Massachusetts. As Project Scientist, Elizabeth conducted a wildlife habitat evaluation and provided support to wetlands scientists to prepare State Notice of Intent for the electrical transmission tie-line. She continues to provide scientific support to the lead consultant and is currently supervising implementation of the conservation management plan for the state-endangered large-leaved goldenrod for the turbine project.

Plan for Developing NH's Statewide Trail System for ATVs and Trail Bikes 2004-2008, New Hampshire

Stantec prepared a recreational plan for the State of New Hampshire. Elizabeth conducted a state-wide study of the wheeled off-highway vehicle trail system in New Hampshire. She then co-authored a plan to develop and maintain the trail system in anticipation of project future use. This effort also included conducting agency and public correspondence.

Elizabeth M. Annand

Project Manager

PUBLICATIONS

Nichols, JD, LL Bailey, AF O'Connell, NW Talancy, EH Campbell Grant, AT Gilbert, EM Annand, TP Husband, and JE Hines. Multi-scale occupancy estimation and modeling using multiple detection methods. *Journal of Applied Ecology*, 2008.

Gilbert, AT, AF O'Connell, Jr., JR Sauer, JD Nichols, and EM Annand. Inventory of terrestrial mammals at National Parks in the Northeast Temperate Network and Sagamore Hill NHS. *USGS Technical Report Series*, 2007.

Annand, EM and FR Thompson, III. Forest Bird Response To Regeneration Practices in Central Hardwood Forests. *Journal of Wildlife Management, 61:159-171*, 1997.

Donovan, TM, PW Jones, EM Annand, and FR Thompson, III. Variation in Local-Scale Edge Effects: Mechanisms and Landscape Context. *Ecology, 78:2064-2075*, 1997.