



New Hampshire Fish and Game Department

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November 13, 2008

HAND DELIVERED

Thomas S. Burack, Chairman
Site Evaluation Committee
Dept. of Environmental Services
29 Hazen Drive, P.O. Box 95
Concord, NH 03302-0095

RE: Application of Granite Reliable Power, LLC – Docket No. 2008-04

Dear Chairman Burack:

The Fish and Game Department is supplying these comments in accordance with RSA 162-H: 6-a, V, in order to report on the Department's progress in assessing the potential impacts of the project on wildlife and to inform the Site Evaluation Committee of these issues for it to consider under RSA 212-A: 9, III and RSA 162-H: 16, IV(c).

Pursuant to the Department's response letter dated August 6th, 2008, the Department continues to have concerns regarding direct and indirect impacts associated with this project. The proposed development occurs in rare high elevation habitat known to contain the American marten, a state listed threatened species, several species of wildlife listed as species in greatest need of conservation in New Hampshire's wildlife action plan, and it is potential habitat for Canada lynx, a federally listed threatened species (see attachment).

With this information in mind, the Department intends to continue to request appropriate strategies to avoid, minimize and/or mitigate for wildlife impacts caused by this project before it can support the issuance of permits, conditions or a certificate for an energy facility. At this time, it is our intent to meet with the applicant to discuss our concerns and to develop possible mitigation options for these impacts.

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Thomas S. Burack
November 13, 2008
Page 2

Hopefully, the Department and the applicant will be able to reach an agreement on a mitigation package prior to the February 10th, 2009 submission deadline, regarding final recommended conditions for the Site Evaluation Committee to consider.

Thank you for attending to this matter.

Sincerely,

A handwritten signature in black ink that reads "Carol Henderson". The signature is written in a cursive style with a large, looped initial "C".

Carol Henderson
Environmental Review Coordinator

Cc: Steven J. Weber, Chief of Wildlife

New Hampshire Fish and Game Department's Progress Report for the Application of Granite Reliable Power, LLC

Context of the Proposed Project Area

The proposed Granite Reliable Power (GRP) wind energy development will be sited on three different large land ownership's in Coos County. These ownerships include: GMO (Phillips Brook tract; ~26,000 acres) managed by American Forest Management Inc., Bayroot (~110,000 acres) managed by Wagner Woodlands LTD and Tillotson Corporation (The Balsam's; ~15,000 acres). NH Fish and Game (NHFG) has long recognized the importance of large blocks of relatively undeveloped forest land. These large blocks have high value for wildlife and are important cultural and recreational areas for the general public. Because the majority of the infrastructure and impacts will be concentrated on the GMO and Bayroot ownerships, we have focused our review on these two ownerships.

High Elevation Lands and Habitat

High elevation lands have long been recognized by our Department as a critical component of the landscape and provide unique habitat features for a variety of wildlife, which include state and federally listed species. The forest cover on these lands is characterized by a high percentage of spruce and fir. New Hampshire Fish and Game's Wildlife Action Plan contains a section devoted exclusively to High Elevation Spruce-Fir Forest. This profile asserts that these forests offer some of the last blocks of large, remote contiguous blocks of spruce-fir habitat. In addition, this profile outlines the rarity of this habitat, accounting for only about 4% of the state's land area and this habitat type supports sixty-six vertebrate species. Under the proposed project, significant portions of high elevation habitat will be greatly impacted.

The NH Fish and Game Department has initiated and/or participates in two levels of involvement in the management of high elevation lands, due to the value and high sensitivity of these habitats. The Coos County Unincorporated Towns Planning Board has designated these areas as a Protected District (PD), which is defined as an ***"area where development would jeopardize significant natural, recreational, and or historic resources"***. Areas above 2700 feet in this case are defined as PD6 zones, which include steep slopes and high elevations. The specific purpose of the PD6 zone is to: ***"regulate certain land use activities in mountain areas in order to preserve the natural equilibrium of vegetation, geology, slope, soil and climate in order to reduce danger to public health and safety posed by unstable mountain areas, to protect water quality, and to preserve mountain areas for their scenic values and recreational opportunities."*** Due to their designation as a PD6 zone, any activities at these elevations must acquire a permit from the Coos County Planning Board. Historically, the Board has relied on NH Fish and Game to review and comment on these permit applications.

The second level of involvement involves a High Elevation Memorandum of Understanding (MOU), initiated by NH Fish and Game and others, which set out to protect the values of high elevation habitats. In a collaborative effort involving nearly all of the large landowners in northern NH, the MOU allows logging but provides guidelines and specific goals for forest size class distribution above 2700 ft. This document also makes recommendations on road building and the timing of harvesting activities.

At elevations of 2700 feet and higher, spruce and fir forest dominate the species composition along the ridgelines and upper slopes of these higher mountains. The remaining forest type is composed of mixed wood stands in the transition zones. Both spruce-fir and mixed wood at these elevations can provide the complex forest stand structure, including larger diameter cavity trees, snags and large woody debris for wildlife. Mountain ash are found interspersed among these stands providing an important soft mast food source for wildlife from American marten to black bear.

High elevation forests are subject to natural disturbances that result in a variety of tree size classes and stand distribution. Patches of blown down trees as a result of "fir waves", and insect or wind events create small openings and dense early successional spruce and fir. These areas provide ideal habitat for lynx or Bicknell's thrush, while dead and dying trees create habitat conditions suitable for three-toed woodpeckers and provide den or feeding opportunities for marten.

In the project area, Kelsey and Dixville peaks comprise the two larger patches of high elevation forest (1667 acres on Mt. Kelsey and 1873 acres on Dixville Peak). Of these, Mt. Kelsey is the least disturbed in recent history. According to the 2001 Granit Land cover layer, approximately 846 acres of Mt. Kelsey is classified as the spruce and fir forest type, with the remaining acreage above 2700 feet classified as mixed wood, while over 900 high elevation acres are classified as spruce and fir on Dixville Peak. Tree ring counts of tree growth on newly cut fir stumps at the met tower location on Mt. Kelsey, indicated that these trees were between 80 and one hundred years of age. Existing forest stands on Kelsey include a variety of size classes, including larger diameter red spruce, balsam fir; as well as, dense thickets of sapling and pole sized spruce and fir. Ledge outcrops and boulders on this mountain are additional features beneficial to wildlife.

In the context of the northern New Hampshire landscape, Mt. Kelsey, and Dixville Peak both represent large areas of high elevation land and significant habitat patches of spruce and fir. As a comparison, two high elevation areas including the summits of Rice and Cave Mountains to the north of the project area, have only 350 acres classified as the spruce and fir forest type combined.

The impacts of recent timber harvest on high elevation lands is clearly demonstrated in the recent publication entitled "North Country Timber Harvest Trends Survey" produced by the Society for the Protection Of New Hampshire Forests. This Landsat analysis of timber harvest in 41 north country municipalities revealed the following:" One unexpected finding of this project is that considerable timber harvest has been occurring above 2700 "during all three periods."... and continues, ..." Generally, about 6100 acres or 27% of private land above 2700' has been harvested since 1988. " The report adds, ..."satellite data show significant areas have been predominantly cleared since 1992." Despite protective efforts in the last decade, as a result of the high elevation MOU timber harvests, many instances have reduced spruce and fir forests on some ridgelines to narrow corridors of older aged, relatively undisturbed high elevation forests. Recent heavy timber harvest on Mt. Kelsey for example extends to the 2700-foot elevation with harvests slated above 2700 feet in the near future. Given the slow recovery of forest stands at these high elevations, it may be decades before many of these acres provide viable habitat for wildlife species of concern. Thus, the remaining lightly disturbed patches on the project area represents some of the best remaining habitat capable of supporting viable populations of marten, three toed wood pecker and Bicknell's thrush.

The Proposals' Impacts to Wildlife

Impacts by this project can be characterized as impacts on habitat and impacts to individual animals or their populations. As described in the GRP High Elevation Mitigation plan, total impact to lands above 2700 feet, as described by the applicant is estimated at 58 acres. NH Fish and Game acknowledges that while only 58 acres of habitat will be directly affected through clearing or road building above 2700 feet, the impact of this project is far greater. The project bisects the remaining parcels of high elevation habitat, and as a result severely compromises the integrity and value of all the high elevation management areas in the project. Therefore, New Hampshire Fish and Game asserts that the full impact of this project extends to all the high elevation lands (3747 acres, as recorded by the applicant) found on the four high elevation ridgelines slated for development.

Impacts to individual wildlife and the potential to influence population viability are more difficult to quantify with this project because no similar project of this magnitude has ever occurred in New Hampshire, or anywhere in New England at such high elevations. Accordingly, literature on the direct and indirect impacts of these turbine strings and associated infrastructure is scarce.

While the proposed wind energy project has the potential to impact numerous wildlife species and their habitats, we will focus specific concerns for species that were identified in New Hampshire's Wildlife Action Plan, as "species in greatest need of conservation" or species that are typically of concern when reviewing a large-scale wind energy development. Two of these species, the American marten and the American three-toed woodpecker, are state-listed threatened species, and one, the Canada lynx, is a federally listed threatened species.

American marten

In NH, the high elevation habitats found in the project area are considered core marten habitat (Kelly 2005). These areas serve multiple functions for marten, including the connectivity needed between the more prevalent habitats to the north and the more isolated high elevation habitats to the south (White Mountains). Marten occurrence in this area significantly contributed to marten recolonization in New Hampshire and continues to serve as important core marten habitat today. Marten occurrence has been documented in the project area as early as the 1980's, and the area most notably contained some of the first documented female marten occurrences in the state.

High elevation conditions (i.e. increased snow depths, unique soil composition, inclement weather and infrequent logging) dramatically impact tree species composition and more importantly microhabitat features, such as coarse woody debris and prey availability in these areas (Kelly 2005). American marten in the northeast can be found in forests dominated by mixed, coniferous as well as deciduous stands, as long as they contain complex horizontal and vertical structure selected for by marten. In New Hampshire, this type of habitat is most common and most extensive at elevations above 2700 feet.

For this reason, NH Fish and Game suggested that the consultants for the applicant perform track surveys to detect marten and other large mammals, within the project area during the winter of 2007. Notably, marten tracks were the most numerous of all tracks detected and found most abundant on the Mt. Kelsey ridgeline. This is reflective of the quality of the habitat found there. In addition, the Department feels that the spruce-fir habitat on Dixville peak and

the north end of the Fish Brook ridge are two additional areas with little or no recent timber harvest, resulting in high quality marten habitat.

Marten are exceptionally sensitive to low levels of fragmentation. Fragmentation results in increased isolation and decreases habitat suitability. Marten have been documented in much lower densities, in areas bisected by roads and associated with human activity. Finally, while not well documented, it is very likely that the noise associated with the turbines will impact use of a much larger area by marten. Therefore, forest fragmentation, habitat loss and disturbance could contribute to an exponential decline of marten in the project area. This would likely create a hole in the heart of primary marten habitat in NH.

Canada Lynx

In the Northeast, important lynx habitat is highly associated with increased snow depths and prey availability. High elevation habitats have been identified as some of the most important areas for lynx in the state. As a result, NH Fish and Game is concerned that any net loss of habitat and fragmenting features, will limit future lynx distribution. Lynx are pioneering back into the state with confirmed reports of lynx tracks in northern New Hampshire in recent years. During the winter of 2008, NH Fish and Game received anecdotal reports of lynx tracks observed in the Phillips Brook drainage. As a result, we have recommended that the applicant conduct directed searches for this species.

Bicknell's Thrush

Bicknell's thrush can only be found breeding in the balsam fir-dominated forests on high elevation mountain slopes of the northeastern United States and lower elevation forests further north in the Canadian Maritime Provinces. As a result, their habitat is very patchy and isolated, making the species very vulnerable to habitat loss and fragmentation. In addition, 45% of the potential habitat for this species **in the world** is found in New Hampshire. Therefore, NH Fish and Game has a global responsibility for this species, and we share Audubon's concern for Bicknell's thrush and agree with their report which states... ***"the restricted breeding range and limited extent of its specialized habitat makes the Bicknell's thrush one of the most vulnerable bird species breeding on the project area,"*** The report continues stating: ***"reduction and fragmentation of the limited habitat may have long term negative impacts on local and regional populations of this species."***

American three-toed woodpecker

In New Hampshire, the American three-toed woodpecker is listed as threatened and as a result is profiled in the Wildlife Action Plan. Three-toed woodpeckers are primarily found within high elevation habitats in New Hampshire, due to the higher abundance of dead and dying trees utilized by this species. Data from the North American Breeding Bird Survey (BBS) suggests a significant annual decrease in the population. In New Hampshire, according to the Atlas of Breeding Birds, there was a possible occurrence of a three-toed woodpecker in the Phillips Brook drainage in Millsfield. Audubon's own breeding bird surveys conducted for the applicant, indicated potential detections in 4 locations on Mt. Kelsey. Extensive logging is cited in the Wildlife Action Plan as contributing to the loss of habitat for this species. Again, any net loss of high elevation habitat has the potential to significantly impact this species in NH. The NH Fish and Game Department, therefore concurs with Audubon's report to the applicant that classifies American three-toed woodpecker as: ***"one of the most vulnerable bird species on***

the project area", especially due to their use of habitat structure associated with high elevation areas.

Migratory Birds and Bats

In addition to direct and indirect impacts to high-elevation habitat and associated wildlife, we have concerns over the potential impacts of wind energy projects on bird and bat populations. Several studies have been completed by the applicant and associated consultants (primarily Stantec) targeting bird and bat concerns. The results of these studies allow a comparison with other pre-construction studies conducted for birds and bats in the Northeastern United States. In general, the applicant contends that data (i.e., acoustic bat surveys, radar surveys for birds and bats) collected for this project is consistent with other study sites in the Northeast. However, several uncertainties with methodologies and interpretation of results (i.e., levels of significance in passage rates) remain. Admittedly, some of these limitations are consistent with pre-construction studies for wind energy projects in general and not necessarily specific to the proposed wind project. The US Fish and Wildlife Service (Vern Lang dated 4/23/2008) recommended additional surveys and provided comments on some limitations of survey methodologies.

Despite the comparable results with other bird and bat studies in the region, there is limited information available to evaluate whether these data represent impacts to populations of birds or bats. Limitations include annual and seasonal variation in weather (i.e., wind, cloud cover, precipitation, temperature) and bird and bat passage rates, species composition of targets, and unknown correlations between pre-construction studies and post-construction fatalities. For example, radar technologies are used to report the number of 'targets' moving through a particular area at a particular time. Researchers are unable to determine the species composition of 'targets' and therefore, whether species are 'common' or 'rare'. Without this information, our ability to assess 'significance' of passage rates is limited. Admittedly, these limitations seem consistent among other pre-construction bird and bat studies.



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Glenn Normandeau
Executive Director

August 6, 2008

Michael J. Iacopino
Brennan, Caron, Lenehan & Iacopino
85 Brook St.
Manchester, NH 03104

Dear Mr. Iacopino:

In response to your July 29th letter regarding the Site Evaluation Committee's (SEC) preliminary review of the application by Granite Reliable Power, LLC to construct the Granite Reliable Windpark, I offer the following comments. The Fish and Game Department has concerns regarding direct and indirect impacts on migrating birds and bats, state listed American marten and lynx, native brook trout, and high elevation species including Bicknell's thrush.

The applicant has conducted several studies that help evaluate impacts and aid in the development of draft conditions and mitigation options to minimize impacts on wildlife species. Of particular note, however, is the lack of baseline information on fish, and directed searches for lynx tracks. As you know, RSA 162-H requires SEC applications to include proposals for "studying and solving environmental problems." Both the SEC application and the wetlands permit application refer to a mitigation proposal to address wildlife impacts. We were not able to locate that proposal in either application, even though impacts on wildlife are acknowledged in both.

We are concerned that a mitigation proposal has not been offered at this time. This project is located in a remote and sensitive high elevation area supporting several species of conservation concern. While for the purpose of moving the process forward we will accept the application as complete, we wish to clearly state that appropriate strategies to avoid, minimize or mitigate for acknowledged wildlife impacts will need to be identified through the SEC process before the Fish and Game Department can support the issuance of permits, conditions or licenses.

Sincerely,

A handwritten signature in black ink, appearing to be "GN" followed by a long horizontal line.

Glenn Normandeau
Executive Director