



# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
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January 3, 2007

Mr. Dave Cowan  
VP Environmental Affairs  
UPC Wind Management, LLC  
100 Wells Ave., Suite 201  
Newton, MA 02459-3210

Dear Mr. Cowan:

This is in response to the fall 2004 and spring 2005 radar, visual and acoustic reports prepared for UPC's proposed Sheffield Wind Project in Sheffield, Vermont.

The proposed Sheffield Wind Project raises a number of potential concerns to the Service in the general areas of habitat fragmentation, impacts to waters/wetlands and bird and bat mortality. This letter is generally limited in scope to airspace issues involving the potential for bird and/or bat mortality and ultimately the suitability of the site in this regard. We note for the record that the Service was not consulted prior to the design and conduct of the above-referenced studies.

As a general comment, the Service appreciates the fact that UPC Wind has conducted radar and acoustic studies on bird and bat migration and bat activity at Hardscrabble Mountain and other locations at or near the proposed project. We believe the radar, visual, and acoustic information contained in the above-referenced reports is useful, but that it is not sufficient to demonstrate, at an appropriate scale, the spatial and temporal uses of the airspace over Granby, Libby, Barrett, and Norris Mountains by birds, bats, and insects.

Based on our review of the above referenced reports we have the following comments:

1. The single x-band radar used for the fall 2004 and spring 2005 radar studies was located on Hardscrabble Mountain. With a radar range setting of 0.75 nautical miles, the area sampled included the airspace over Hardscrabble Mountain and its side slopes, Figure 3-1. It is unclear if the radar could scan the side slopes and valleys below the elevation of the radar, and if so, what volume of airspace was sampled. The data was analyzed out to a range of 0.5 km (1640 feet) from the radar. None of the radar data collected in 2004 and 2005 covers any of the wind turbines proposed for Granby, Libby, Barrett, and Norris Mountains in the current project configuration.

2. The data collected in 2004 and 2005 is limited to the time periods of those surveys. Since the data set includes one spring and one late fall season, it does not provide information on a full fall migration season or year-to-year variability on bird and bat migrations at Hardscrabble Mountain. As no radar data was collected from the current project area, no clear basis exists to demonstrate that the data can be directly transferred to these other sites or what limitations might apply if attempts are made to transfer the data.

3. The fall 2004 radar data was collected on 20 nights during the period September 26 – November 3. This period represents the latter half of the fall bird migration season and likely sampled only a small fraction of the bat migration season. While this late migration season data is important information to collect, the first half of the bird and the entire bat migration season is no less important.

4. The fall 2004 and spring 2005 radar data has a sample bias for dry weather conditions. Radar scanning was conducted on only six nights when precipitation (passing showers or snow) was indicated, and then only for 2, 4 and 2 hours respectively on October 16, 17 and 31, and for 7 hours each night on May 2, 14 and 25, Tables 3-1.

5. Weather conditions representing the nightly sampling period were given for the 12-hour nightly period. Weather conditions were not broken down by hourly increments, even though some weather data was apparently collected on an hourly basis, fall 2004 report page 15.

6. Information on cloud ceiling height in the radar coverage zone or project area was not collected or reported in any time increment.

7. Migration takeoff and stopover activity is not reflected in the radar data. The mean flight elevation at the beginning and end of the nightly surveys was generally 200m or higher. The number of targets is lower at the beginning and end of nightly surveys but mean elevation of targets remains well above the rotor swept zone (125m). We would expect to observe lower mean flight elevation and greater occurrence of targets at heights less than 125m at the beginning and end of each nightly survey than the data in Figures 3-9 and 3-10 (fall 2004) and Appendix B, Table 2 reveals. We note an apparent error on Figure 3-9 (page 26) and Appendix B, Table 3 for spring 2005. We think the mean flight elevation for hour 1 should be 483m, not 161m.

8. Insufficient radar and weather data has been collected, analyzed and reported on hourly intervals for the project area to identify when biotargets are in or near rotor swept zone elevations due to compression or other effects related to wind, cloud cover, depth of clouds, cloud ceiling height, fog, precipitation, topography or some combination of the above or other factors.

9. Both spring (2005) and fall (2004) reports contain potential warning signs for diurnal and nocturnal migrants at the Hardscrabble site. Table 3-1 (page 19) and Figure 3-8 (page 25) for spring 2005 reveal four (4) nights in this data set—May 4, 12, 18, and 26—that had above average or spikes in biotarget traffic at mean elevations less than 125m. For fall 2004, Table 3-1

(page 13) and Figure 3-8 (page 23) indicate that the night of October 17 had above average biotarget traffic below 125m. For each of these nights, the weather data indicated strong/gusty winds or clouds, fog, showers or some combination. Migration volume on all five nights was below average with less than 100 targets/kilometer/hour.

10. Within night variation in flight height which could be a risk factor for birds and bats is also apparent from an examination of Appendix B, Tables 2 and 3 for fall 2004 and spring 2005, respectively. In Table 3, the following flight data are listed:

May 1 – Mean flight elevation drops from 606m at hour 4 to 342m at hour 6, and then to 191m at hour 7.

May 4 – Mean flight elevation drops from 545m at hour 2 to 177m at hour 3.

May 18 – Mean flight elevation drops from 465m at hour 3 to 319m at hour 5, then to 213m at hour 6, and then to 454m at hour 7.

May 25 – Mean flight elevation drops from 480m at hour 3 to 183m at hour 7.

The following data is contained in Table 2:

September 26 – Mean flight elevation drops from 1008m at hour 4 to 375m at hour 11, and then rises to 479m at hour 12.

October 1 – Mean flight elevation drops from 918m at hour 7 to 359m at hour 8.

October 17 – Mean flight elevation drops from 902m at hour 2 to 241m at hour 3, and then to 158m at hour 4.

11. Unfortunately, the weather information in these reports contained on Tables 3-1 is generalized for each survey night and is not displayed by hourly increments. Specific weather parameters such as wind speed and direction at ground level and aloft, maximum gusts, cloud ceiling height, percent cloud cover, cloud depth, fog and precipitation events are not provided by hourly increments and some parameters may not have been collected. Accordingly, it is not possible to determine if, and to what extent, correlations exist between the changes in flight altitude of biotargets with time and weather phenomena at the Hardscrabble site.

12. The fall 2004 and spring 2005 raptor surveys estimate that 31 and 69 percent, respectively, of the raptors and related species were flying at less than 125m above the ground. The fall 2004 survey did not report observing flight paths for raptors from the Hardscrabble and Barrett sites. In spring 2005, primary and secondary flight paths for raptors were observed from the Hardscrabble site. At this juncture, no site-specific data on raptor flight paths at the proposed project area is available. Accordingly, little or no information is available to explain how raptors are affected by topography, wind speed and direction and other weather phenomena at the proposed project area.

13. The discussion above on flight paths through the project area extends to other birds, particularly the nocturnal migrants and to bats. We note that Woodlot indicates in the data analysis section of the fall 2004 report, page 15, that it uses a software tool to, among other things, track the location of biotargets on the 1-minute video samples of horizontal data. It would be useful to know if this or some additional software can be used to create scatter plots of the

locations of the targets at given directions and distances from the radar on the horizontal scans at 0.5 km and 0.75nm range settings. If so, this might provide some indication regarding whether migration channeling occurs in the area surveyed by radar at the Hardscrabble site under various weather conditions.

14. The question regarding migration channeling at the Granby – Libby – Barrett – Norris chain of peaks, ridges and valleys is one for which the above-referenced reports have little or no information. If migration channeling occurs, when, where, under what weather or other conditions, how frequently and how many biotargets are involved are among the important questions that need to be assessed to help determine site suitability from a migratory bird and bat perspective.

Accordingly, we recommend that at least two additional years of radar and acoustic array surveys be conducted during spring and fall migration seasons to determine in appropriate scales what the spatial and temporal distribution of birds and bats is at the presently configured wind project site. We are available to discuss technical and other aspects relating to the design and conduct of the remote sensing and visual studies that would address the issues identified herein, including how to determine whether and to what extent data from the Hardscrabble site would be transferable to the present project area.

#### Migratory Bird Treaty Act

Among other things, the Migratory Bird Treaty Act, 16 U.S.C. § 703-712, prohibits the taking, killing, injuring, or capture of listed migratory birds. The unauthorized taking of even one bird is legally considered a "take" under the MBTA and is a violation of the law. Bald and golden eagles are afforded additional legal protection under the Bald and Golden Eagle Protection Act. Neither the MBTA nor its implementing regulations, 50 CFR Part 21, provide for permitting of "incidental take" of migratory birds that may be killed or injured by the wind turbines.

The Service carries out its mission to protect migratory birds not only through habitat and species management, regulatory programs, investigations and enforcement, but also through fostering relationships with individuals and industries that proactively seek to eliminate their impacts on migratory birds. It is not possible under the MBTA to absolve individuals, companies, or agencies from liability if unauthorized take occurs. However, depending on the circumstances, the Office of Law Enforcement may exercise enforcement discretion. The Service focuses its attention on those individuals, companies, or agencies that take migratory birds with disregard for their actions and the law, especially when conservation measures such as preconstruction surveys have been recommended or developed but are not conducted or properly implemented. In this respect, we note that little effort has been made to identify the spatial and temporal uses of the airspace by migratory birds at the presently configured project site.

We believe the Sheffield Wind Project fits in a category of activities that potentially constitutes a preventable environmental hazard to migratory birds and bats. The Service recommends that preconstruction surveys for migratory birds and bats as identified above be conducted using a combination of remote sensing technology (radar, acoustic, infrared) and traditional on-the-ground survey techniques to determine the spatial and temporal uses of these species in the

airspace at and adjacent to the Granby – Libby – Barrett – Norris chain of peaks, ridges and valleys. In the absence of adequate preconstruction data on spatial and temporal uses by avian species, you proceed with this project at your own risk. Any subsequent take of migratory birds or other listed species may be evaluated in light of this administrative record.

Questions should be directed to Mr. Vernon Lang of this office at 603-223-2541 or email [vernon\\_lang@fws.gov](mailto:vernon_lang@fws.gov).

Sincerely yours,



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