

STATE OF MAINE  
DEPARTMENT OF CONSERVATION  
LAND USE REGULATION COMMISSION

IN THE MATTER OF

MAINE MOUNTAIN POWER, LLC	)	
BLACK NUBBLE WIND FARM	)	
	)	PRE-FILED TESTIMONY
REDINGTON TOWNSHIP, FRANKLIN	)	APPALACHIAN MOUNTAIN CLUB
COUNTY, MAINE	)	DR. KENNETH D. KIMBALL
	)	
ZONING PETITION ZP 702	)	

**I. INTRODUCTION**

My name is Kenneth Kimball. I hold a doctorate in botany from the University of New Hampshire, a Masters in zoology from the University of New Hampshire and a Bachelors of Science in ecology from Cornell University. I have been employed as the Research Director for the Appalachian Mountain Club since 1983. I have overall responsibility for the club's research in the areas of air quality, climate change, northeastern alpine research, hydropower relicensing, windpower siting policy and land conservation and management. I was the organizer of the Northeastern Mountain Stewardship Conference, held in Jackson, NH in 1988, co-organizer of the National Mountain Conference held in Golden, CO in 2000 and one of the original founders of what is now the biannual Northeastern Alpine Stewardship Symposiums. I have conducted research on New Hampshire and Maine's mountains, including on Mount Katahdin, Saddleback, Sunday River Whitecap and the Mahoosucs. I am currently the principal investigator of a NOAA-funded research project titled "*Climate and air pollutant trends and their influence on the biota of New England's higher elevation and alpine ecosystems*", which includes partner organizations the University of New Hampshire and Mount Washington Observatory. I have

been involved in research and policy development related to windpower siting in the northeast for over a decade. I have organized and chaired several forums on the need for states to develop windpower siting policy in Massachusetts and New Hampshire and spoken at a number of forums on this need. I was directly involved in the settlements that AMC signed with the original Kenetech Windpower Project in the Boundary Mountains in the 1990s, and more recently with TransCanada for a modified windpower project at the same location.

I visited the Black Nubble site on July 26, 2007 in the company of the applicant's representative and other witnesses for the interveners. I also viewed the Black Nubble site and its surrounds from Saddleback Mountain, the Horn and Saddleback Junior most recently on July 14<sup>th</sup>, 2007. I attended the Commission's hearings for the original Redington application at Sugarloaf in 2006. During the Saddleback Ski area expansion proposal to cross the Appalachian Trail and surrounding alpine habitat in the 1990s, I was on site visits and provided testimony during those proceedings. Therefore I have a good familiarity with this mountain region and its resources, as well as its regional context in relation to other mountains in New England.

This testimony was prepared with the technical assistance of AMC Senior Staff Scientist Dr. David Publicover.

## **II. AMC GENERAL STATEMENT ON RIDGELINE WINDPOWER DEVELOPMENT**

As the region's primary organization devoted to the conservation and wise use of the region's mountain areas, the AMC has a strong interest in the development of renewable energy. We have a long history of research into mountain air quality and the conservation of alpine areas, and we fully recognize the damage that our society's continued reliance on fossil fuels can have on the areas our members care about. We believe that windpower is an important part of a

regional renewable energy strategy. However, terrestrial ridgelines, one of the primary sites of interest for windpower development, are often the least developed and most natural parts of our heavily utilized landscape, and are areas of potentially high ecological, recreational and scenic value. In permitting this technology, we believe it is important that regulators strike a proper balance between development and conservation of open space areas with high resource value. Our research has been aimed at providing information that would allow stakeholders to assess this tradeoff, and to identify potential development sites with both high and low levels of conflict with natural resource values of recognized state, regional or national significance.

We fully agree that global climate change is a critical issue that needs to be addressed at a high level of priority. However, climate change should not be seen as a problem that exists in isolation. Rather it is one symptom of a much broader problem – our ever-growing human population and the ever-expanding pressures we are putting on the natural world to support this population. Simply put, we are consuming our life-support system at an unsustainable rate to satisfy our insatiable demand for energy and other resources. Another critical symptom of this problem is the continuing loss and degradation of wild natural areas – areas that are the most important for the conservation of biodiversity. We do not believe it makes sense to address one symptom of this larger problem in a way that makes another worse.

Our opposition to this project is based on our understanding of the particular resource values that the project would impact. It should not be taken as blanket opposition to ridgeline windpower development. To date we have evaluated about a dozen windpower projects proposed for ridgelines across New England, and this is the only one that we oppose. We are supporting both the Kibby (TransCanada) and Stetson (Evergreen) applications.

### **III. ISSUES OF CONCERN NOT DISCUSSED IN DETAIL**

There are a number of issues that are of major concern to AMC, but we defer to other witnesses within our consolidated group on these issues, which include: (1) Bicknell's thrush; (2) decommissioning; and (3) scenic impacts to the Appalachian Trail and Mount Abraham.

We also raise concern about one additional issue without presenting detailed testimony, which is the financial viability of the project. Section 3.5 of the revised application contradicts sworn testimony presented at the original public hearing. It is difficult to understand the Applicant's rapid reversal. Under sworn testimony during the Redington hearing they concluded that a Black Nubble-only project was not financially viable, yet little more than half a year later they conclude just the opposite. At 54 MW, Black Nubble represents only 60% of the originally proposed nameplate capacity (90 MW). We do not understand what comparably large changes in project economics have taken place to justify their conclusion, since no real comparative evidence is presented showing how construction costs have declined or power prices have increased by a comparable magnitude over a short period of time to justify such a turn around. The revised assessment of the economic viability of a Black Nubble project appears to be based not on firm contracts (the application admits that they have only "begun the process of renegotiating the price of our power sales contract with our energy distributor") but on consistently optimistic assumptions about future project revenue. This section includes phrases such as "MMP is now confident...", "MMP has a bullish or optimistic view...", and "MMP remains optimistic...". We do not have the technical expertise to address this issue, but urge the Commission to consider whether the applicant's optimistic assumptions are a sufficient basis for satisfying the economic viability criterion.

#### IV. INFORMATION RELEVANT TO MAJOR ISSUES

In this section we provide the factual background on three primary issues of concern: the landscape context of the project, the presence of an impact on a rare natural community, and the impact of road construction and cut-and-fill. The relationship between this information and relevant LURC permitting criteria will be discussed in Sections V and VI.

##### A. Landscape Context

LURC jurisdiction is the largest relatively undeveloped landscape in the eastern United States. The Western High Mountains region is one of the wildest places within the jurisdiction<sup>1</sup> and one of the state's iconic natural landscapes. Within the area bounded by Routes 16, 27, 142 and 4, and including the Bigelow Range just to the north<sup>2</sup>, is a mountain region that has no parallel in the state outside of Baxter State Park. This region encompasses:

- The greatest expanse of high-elevation land in the state<sup>3</sup>.
- The greatest collection of high peaks in the state<sup>4</sup>.
- The greatest expanse of alpine vegetation in the state outside of Baxter State Park.
- The greatest collection of large roadless areas in the state outside of Baxter State Park<sup>5</sup>.
- The largest contiguous block of coniferous forest in the western mountains region<sup>6</sup>. (“Mountaintop stunted conifer woodland” and mature coniferous forest are two of the five high priority habitats identified for the Eastern Spruce-Northern Hardwood region by Partners in Flight<sup>7</sup>.)
- The greatest expanse of potential Bicknell's thrush habitat in the state<sup>8,9</sup>.

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<sup>1</sup> See Exhibit A.

<sup>2</sup> See Exhibit B.

<sup>3</sup> The region contains approximately 30,500 acres of land above 2700' – about 23% of the state's total and 50% more than lies within Baxter State Park.

<sup>4</sup> Of the 13 highest peaks in the state listed in *Mountain Areas in Maine* (Maine State Planning Office, 1975), 9 are in the Western High Mountains region, 3 in Baxter State Park, and 1 in the Mahoosuc Range.

<sup>5</sup> See Publicover, David and Cathy Poppenwimer. 2006. Roadless Areas in Northern New England: An Updated Inventory. AMC Technical Report 06-1, Appalachian Mountain Club, Gorham, NH. (Included as Exhibit C of David Publicover's pre-filed testimony for the original MMP application.)

<sup>6</sup> See Exhibit C.

<sup>7</sup> See [http://www.blm.gov/wildlife/pl\\_28sum.htm](http://www.blm.gov/wildlife/pl_28sum.htm).

<sup>8</sup> See Exhibit D. The U.S. Fish and Wildlife service memo describing the ecological values of the U.S. Navy property states, “The higher elevation conifer forests on *and adjacent to* this site are at the center of the global distribution of Bicknell's Thrush, the region's only endemic bird species. This property likely hosts a significant portion – and some of the highest densities – of this species entire global population.” [Italics added]

- One of the most spectacular stretches of the entire Appalachian Trail<sup>10</sup>.

The ecological values of the region have been well summarized in McKinley (2007)<sup>11</sup>.

The value of the area is also demonstrated by the high level of interest in land conservation in this region that has emerged in recent years, including:

- The National Park Service’s long-standing effort to conserve the Appalachian Trail corridor and adjacent lands on Saddleback Mountain.
- The work done by the State of Maine and the Trust for Appalachian Trail Lands to conserve lands around Mount Abraham.
- The U.S. Fish and Wildlife Service’s strong interest in transferring the U.S. Navy’s SEET facility (directly adjacent to the proposed development) to the National Wildlife Refuge System<sup>12</sup>.
- The core of the area, encompassing all of the high peaks (including Black Nubble), has been mapped as a priority block for conservation by The Nature Conservancy as part of their Northern Appalachians bioregional analysis<sup>13, 14</sup>

When the LURC Comprehensive Plan noted that “In light of the limited supply of mountain resources and their value, it is unlikely that all such areas will be considered suitable for rezoning and associated development by the Commission”<sup>15</sup>, surely it was referring to an area such as the Western High Mountains, for no other area in state is more worthy of this consideration.

Within this region are three large contiguous area that are generally free from roads and which represent the wild natural core of the region: 1) the Bigelow Range, 2) the Sugarloaf-Spaulding-Abraham range, and 3) the Saddleback and Black Nubble-Redington-Crocker ranges, which are united by the wild lower-elevation area within the U.S. Navy property. While there

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<sup>9</sup> See also Lambert, J. Daniel et al. 2005. A practical model of Bicknell’s thrush distribution in the northeastern United States. *The Wilson Bulletin* 117(1): 1-12.

<sup>10</sup> Refer to testimony of Appalachian Trail Conservancy, Maine Appalachian Trail Club, and National Park Service.

<sup>11</sup> See Exhibit E.

<sup>12</sup> See Exhibit D.

<sup>13</sup> Anderson, Mark et al. 2006. Northern Appalachian – Acadian Ecoregional Assessment Resource CD. The Nature Conservancy, Eastern Conservation Science, Boston, MA. Inclusion of this information is not intended to imply any position on the part of The Nature Conservancy regarding development in this area.

<sup>14</sup> The value of establishing an ecological reserve in this area was also noted by the U.S. Fish and Wildlife Service (see Exhibit D).

has been some human disturbance within these areas, including the Saddleback and Sugarloaf ski areas and timber harvesting on some sideslopes, the ridgelines and upper slopes of these regions represent the most significant collection of wild natural areas in the state outside of Baxter State Park.

Black Nubble is not an isolated or peripheral peak, but an integral part of this significant montane ecosystem. It lies within the largest block of land above 2700' in the state and extends to nearly 3700' in elevation. The eastern half of the project area, encompassing the summit cone of Black Nubble (and the site of half of the proposed turbines), supports a pristine rare subalpine forest community (see next section) that is contiguous with a much larger area of relatively natural habitat extending south across the adjacent U.S. Navy property to the Saddleback range and east to Redington and Crocker<sup>16</sup>. The project would cause extensive disruption to lands above 3500' – an extremely rare habitat that makes up just 1/20 of 1% of the state's land area.

In short, Black Nubble is not an undistinguished peak that has been heavily degraded by human activity. Rather, the project area encompasses extensive rare and pristine subalpine habitat that is part of the core of one of Maine's wildest and most significant mountain ecosystems.

### **B. Fir-Heartleaved Birch Subalpine Forest Community**

The eastern half of the project area (containing turbines 9 through 18 and extensive access roads) is mapped as the Fir-Heartleaved Birch Subalpine Forest community by the applicant (Application Fig. 7-4) – the same community that covers the Redington Pond Range. This community is rated as rare (S3) by the Maine Natural Areas Program. The extent of the community is not given, but based on Figure 7-4 (and excluding areas that show evidence of

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<sup>15</sup> Comprehensive Land Use Plan [CLUP] P. 59.

<sup>16</sup> See Exhibit F, photo F-1.

recent harvesting) we estimate that it encompasses between 325 and 350 acres. This is in the middle of the size range for currently documented examples of this community in the MNAP database.

The site was visited on July 26, 2007. As best as we could determine, the community above the limits of recent heavy harvesting was in an entirely natural condition and very characteristic of this type as it has been observed in other reserve areas (such as the White Mountain National Forest). There was no evidence of harvesting, roads or other past human intrusion other than the limited recent disturbance created by the applicant. The community displayed the complex and highly variable disturbance pattern created by natural processes (including wind, snow, ice and insects such as spruce budworm)<sup>17</sup>. Conditions ranged from relatively mature stands that had remained undisturbed for 80 to 100 years<sup>18</sup> to stands with younger vegetation, extensive dead wood and more complex vertical structure that is ideal habitat for Bicknell's thrush<sup>19</sup>. Fir waves were observed along the northwestern side of the summit<sup>20</sup>; the application acknowledges (Section 7.2.2.5, page 14) that "Fir waves are an unusual expression of this community". This complex and diverse mosaic of horizontal and vertical structure created by natural disturbance is in marked contrast to the greatly simplified structure created by clearing for meteorological towers<sup>21</sup> as well as by clearcutting at lower elevations.

The value of this example of this community is enhanced by its location contiguous to a much larger area of relatively undisturbed and natural habitat located on the adjacent U.S. Navy property<sup>22</sup>. We disagree with the applicant's assertion (Application section 7.8.5, page 105) that

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<sup>17</sup> Exhibit F, photos F-2 to F-6.

<sup>18</sup> Based on ring counts of stumps recently cut by the applicant.

<sup>19</sup> Refer to testimony of Maine Audubon Society.

<sup>20</sup> Exhibit F, photo F-7.

<sup>21</sup> Exhibit F, photo F-8.

<sup>22</sup> The can be seen on Application Figure 7.4; also see Exhibit D and photo F-1.

the Black Nubble ridgeline “is not located within a large and contiguous unfragmented forest”. Given the extensive fragmentation that exists at lower elevations, it is particularly important to maintain the core unfragmented high elevation habitat.

The application states (section 7.8.5, page 106), “...narrow clearings for the access roads represent the only major direct habitat loss associated with the project...For the most part, however, clearings made for wind turbines and the 34.5 kV transmission line corridor will revegetate to conditions that resemble the regenerating clearcuts and blowdowns that are already common in the region.” We believe that this grossly minimizes the impact to this rare natural community. The cleared areas along the summit road may *average* up to 90 feet in width – 2 to 4 times the canopy height. In several areas where parallel roads lie in close proximity (most notably along the upper Black Nubble Summit Road and the spurs to turbines 13 through 18) the forest between the roads will be either eliminated or reduced to a narrow strip with a high likelihood of blowdown. The area between the summit road and the spur to turbine 16 may result in a broad swath of cleared or blowdown vegetation several hundred feet wide.

Much of the cleared area will be steep cut-and-fill slope with all vegetation and soil removed. While these areas may be revegetated by artificial means, they will not return to anything approaching the native vegetation in for a century or more. In addition, the permanent openings maintained for roads, turbines and transmission lines will alter the microclimate and greatly enhance the extent of continuous blowdown adjacent to these openings, creating a broader zone of permanent impact that will limit the recovery of natural vegetation. The idea that the impacts of this project will eventually blend into and resemble the complex and ever-shifting mosaic of disturbance-recovery-maturation that characterizes the natural community is not credible.

### **C. Soils, Steep Slopes and Cut-and-Fill**

This project will be the most significant disturbance to a high-elevation environment ever proposed in Maine. It will involve extensive cut-and-fill of very steep mountain slopes on soils rated as having severe hazard for erosion by the Natural Resources Conservation Service. The proposed project actually requires four times the length of road on slopes over 33% than would have been required to develop the Redington Pond Range. The extent of cut-and-fill associated with the existing Mars Hill project (which has been viewed by the Commission) is likely a fraction of the impact that would be created by this project, which is located in a far more fragile and ecologically significant environment.

The actual extent of cut-and-fill that will take place cannot be determined, as no comprehensive engineering plans showing cut-and-fill areas along the turbine strings and access roads have been included in the application. The revised application includes one drawing (Appendix 2.1, sheet C-BN18) described as a “example”, but this is of a lower-elevation and more gently sloping portion of the access road. The extent of cut-and-fill on steep, high-elevation slopes is one of the most critical issues that the Commission needs to consider in its evaluation of the project, yet there is no information in the application that will allow an informed evaluation. This is in marked contrast to the applications for the other three windpower projects in Maine (Mars Hill, Stetson Mountain, and Kibby Mountain), all of which included engineering drawings showing original and new (altered) contours and the extent of cut-and-fill areas.

It is worth noting that, in its initial review of the Stetson Mountain application, LURC staff requested additional information on the extent of cut-and-fill<sup>23</sup>, despite the fact that the

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<sup>23</sup> Letter from Marcia Spencer-Famous to Matt Kearns and Dave Cowan of Evergreen Wind dated June 11, 2007. Item number 4 under “Engineered plans and detail” states, “Please provide additional information on areas to be cut

Stetson project is located on gentler, lower-elevation slopes, and that the application included detailed engineering drawings showing cut-and-fill areas. To our knowledge, no such additional information request has ever been made of Maine Mountain Power by LURC staff, despite the fact that the cut-and-fill in this project presents a much higher level of concern.

The slope maps included as application Appendix 2-5 indicate the areas of greatest concern. However, these maps conceal the full extent of potential impact. The highest category on these maps shows slopes greater than 33%. Proposed roads along these slopes traverse side slopes that often exceed this by a considerable amount. We measured sideslopes along proposed road corridors both in the field with a clinometer and on contour maps included in the application. Both field measurements and map-based analysis indicate sideslopes along proposed road corridors as high as 55% - the approximate slope of the upper portion of Sugarloaf Ski Area, described on the Sugarloaf web site as the steepest ski terrain in New England.

The most significant areas of road on very steep slopes are:

- Upper Black Nubble Access Road – elevation from 3125’ to 3325’ with sideslopes between 38 and 45%.
- Lower Black Nubble Summit Road between turbines 9 and 11 – elevation from 3325’ to 3425’ with slopes ranging from 47 to 55%<sup>24</sup>.
- Spur to turbine 15 – elevation of 3575’ with slopes between 33 and 37%.
- Spur to turbine 16 – elevation of 3575’ to 3650’ with slopes between 40 and 55%<sup>25</sup>.
- Spur to turbine 17 – elevation of 3550’ with slopes between 40 and 45%.
- Upper Black Summit road between spur to turbine 15 and turbine 18 – elevation of 3425’ to 3550’ with slopes between 33% and 55%<sup>26</sup>.

In total, we estimate that the project will require nearly 6,000’ of road on slopes up to 55%, all of which lies above 3000’ in elevation and over half of which is located above 3500’.

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and filled for the road, the turbine pads, the lay-down areas, and other area to be cut and/or filled in the project area. Also, please confirm if the areas currently shown are the maximum that would be altered, or would some of these areas become larger as the engineering plans are further refined?”

<sup>24</sup> Exhibit F, photo F-9.

<sup>25</sup> Exhibit F, photo F-10.

<sup>26</sup> Exhibit F, photo F-11.

Over half of this steep road lies on slopes in excess of 40%. In addition, 3 of the turbine locations (numbers 16, 17 and 18) are shown as lying on slopes greater than 25%, all at high elevation, and the electrical transmission line (which is intended to be buried underground) will run down the north slope of Black Nubble, long stretches of which exceed 50% slope.

The high elevation of these roads and turbine pads are particularly problematic. To our knowledge, there are no existing roads that would provide a model for evaluating the risk of such extensive construction in these conditions. Much of the assessment of the suitability of proposed road construction techniques appears to be based on a field workshop held on November 12, 2003 (Application Section 11, pages 5-8; Application Appendix 2.7). The application states (Section 11, page 5), “This field workshop visited several miles of high elevation (2400’ to 2700’) existing roadways that had been constructed on similar soils that *Black Nubble Wind Farm* project will encounter with identical growing season, similar topography and drainage characteristics.” This statement is misleading for several reasons:

- The application does not indicate the sideslopes examined during the field workshop. We examined these road locations as best as we were able on 1:24000 USGS quad maps and they did not appear to contain anything approaching the long stretches of very steep slope that will be encountered by the project roads. None of the photos taken during the site visit appear to show sideslopes as steep as those that will be encountered in this project.
- The proposed project roads do not have “identical growing season” to the areas examined in the field workshop. Growing season declines with elevation, as the application states in section 11.3.4.
- Precipitation increases with elevation. A regression model of precipitation in relation to elevation for the northeastern United States developed by Ollinger et al. (1993)<sup>27</sup> predicts that above 400 meters (about 1300’) in elevation annual precipitation increases by 90 centimeters for every 1000 meters in elevation, or an increase of nearly 11 inches per year between 2700’ and the summit of Black Nubble at 3700’.

In short, the roads proposed for this project are located in conditions that are considerably steeper, colder and wetter than those examined during the field workshop. Lessons drawn from

logging roads between 2400' and 2700' do not form an adequate basis for evaluating the risk of much larger roads constructed on steeper slopes 1000' higher in elevation.

The chapter on soils within the project (Application section 11) includes very little discussion of the steep sideslopes that will be encountered. The section on "slope gradient" (section 11.3.3) addresses only the vertical alignment of the road but not sideslopes.

The soils map included with the application (Section 11, Appendix A.1) shows that roads and turbine pads on the Black Nubble summit cone will be located in three soil associations - Saddleback-Mahoosuc-Sisk E, Surplus-Sisk E, and Sisk-Surplus D<sup>28</sup>. The Franklin County soil survey<sup>29</sup> describes the Saddleback-Mahoosuc-Sisk E association and states that the erosion hazard for soils in this association is moderate to severe<sup>30</sup>, equipment limitations are severe, and that "these soils are unsuitable for logging roads and skid trails because of slope, shallow to bedrock conditions, stones and boulders."

The Franklin County survey does not describe either the Surplus-Sisk E or Sisk-Surplus D associations, as these associations (and the individual soils series that make up the associations) generally occur on much more moderate slopes (less than 25%). The lack of information in the county soil survey would seem to indicate that the presence of Sisk and Surplus soils on very steep slopes represents a relatively unusual condition. When Sisk soils are included within the Saddleback-Mahoosuc-Sisk association they are described as having severe erosion hazard.

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<sup>27</sup> Ollinger, S.V. et al. 1993. A spatial model of atmospheric deposition for the northeastern U.S. *Ecological Applications* 3:459-472.

<sup>28</sup> The letter following the soil names indicates the slope class, which ranges from "B" (flat to gently sloping) to "E" (very steep).

<sup>29</sup> Soil Survey of Franklin County Area and Part of Somerset County, Maine. USDA Natural Resources Conservation Service, 2003.

<sup>30</sup> Franklin County soil survey, Table 7.

## D. Comparison to Other Windpower Project Sites

In comparison to the other commercial windpower projects approved or proposed in the state (Mars Hill, Stetson Mountain, and Kibby), there can be little question that the Black Nubble project will have a far more significant impact on important natural resource values:

- The project will have an extensive adverse impact on a pristine rare subalpine forest community. In contrast, the Mars Hill and Stetson projects are located in common lower-elevation forest communities that have been heavily impacted by past human use. The Kibby project will have a “limited and inconsequential” impact on a small area of a rare subalpine forest community<sup>31</sup>.
- The project will have a severe adverse impact on a nationally significant scenic resource and recreational experience – one of the most spectacular stretches of the Appalachian National Scenic Trail. The scenic impacts of the other projects will be to areas or features that are of primarily local significance or to developed areas.
- The Black Nubble project is located in one of the most important habitat areas for Bicknell’s thrush in the northeast, and the subalpine forest community has the characteristics of excellent habitat for this species<sup>32</sup>. In contrast, the Kibby project is nearly all below the elevation for prime Bicknell’s habitat, and Maine Department of Inland Fisheries and Wildlife has stated, “...we concur with the assertion in Section 7.2.5.3 [of the TransCanada application] finding no suitable habitat within the project area for Bicknell’s thrush...” Mars Hill and Stetson have no habitat for this species.
- The Black Nubble project will have its closest turbine located 4.7 miles from the nearest state highway or public road. In contrast, the other projects will have their closest turbine no farther than 1.2 miles from the nearest state highway or public road.
- The Black Nubble project has no existing roads within the project area. In contrast, the other projects all have one or more existing roads to the turbine string corridors that will be used to access at least parts of the project.
- The Black Nubble turbines are located at significantly higher elevation than the other projects – all are located above 2700’, 16 of the 18 are located above 3000’, and 3 are located above 3500’. Mars Hill and Stetson are both well below 2700’. For the Kibby project, 10 of the potential 46 turbine locations are below 2700’, and 36 are below 3000’. The highest elevation turbine in the Kibby project is almost 500’ lower than the highest turbine on Black Nubble.
- The Black Nubble project will involve extensive road construction on very steep slopes (>33%) at high elevations – all of it above 3000’ in elevation, and over half above 3500’. The Stetson project involves little or no road construction on steep slopes. The Mars Hill project involved a limited amount of road construction on steep slopes, but this consisted of shorter stretches at much lower elevation. The Kibby project will also involve some road construction on steep slopes, but nearly all of this lies below 3000’ in elevation.

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<sup>31</sup> Letter from Raquel Goodrich of MNAP to Marcia Spencer-Famous dated May 16, 2007. Subsequent re-mapping of this community by MNAP indicates that it is well-removed from the closest project roads and turbines.

<sup>32</sup> Refer to testimony of Jody Jones of Maine Audubon Society.

Regarding this last issue, it is instructive to compare the comments submitted by State Soil Scientist David Rocque on the original Maine Mountain Power application dated March 10, 2006<sup>33</sup> and those submitted on the Kibby (TransCanada) application dated April 30, 2007. By our reading, Mr. Rocque's comments on the MMP application consistently express a higher level of concern regarding proposed impacts, and a lower level of confidence in the applicant's ability to address those impacts, than do his comments on the TransCanada application. For example, he makes the following statements in his comments on the Maine Mountain Power application:

“My primary concern with this proposed project (as was the case with its predecessor) is with the construction of roads in such a fragile area with multiple limitations (some severe) including unique soils, boulder covered surface areas, very steep slopes, depth to bedrock, number and type of drainage ways, climate, shallow seasonal water tables and type of road needed. It will be almost impossible to construct the type of stable roads needed without significant alteration to the mountains and in particular to the hydrology that supports streams, wetlands and groundwater systems below. Many of the soils to be disturbed have very low development potential including road construction potential.”

“I expressed this concern [regarding road ditching] to the applicants engineer on a number of occasions...I suggested minimizing the use of road ditches...The applicants engineer and soil scientist appeared to be in agreement with this suggestion but I question whether those techniques will be used exclusively where appropriate...”

In contrast, in his comments on the TransCanada application he makes note of the limitations and challenges associated with construction in higher-elevation environments, but nowhere does he express the level of concern that is evident in the first quotation above. Rather than speaking of “significant alteration to the mountains”, he notes only that “Deep road cuts for a few road sections are proposed.” He states “In general, it appears that the applicant has proposed to locate the access roads in soils that are as suitable as reasonably possible on mountainsides and tops.” He also states “It is my professional opinion that the applicant has: 1. Demonstrated an understanding of the soil, slope and hydrology limitations which will be

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<sup>33</sup> In the absence of revised comments from Mr. Rocque we assume that his original comments are still applicable.

encountered..., and 2. Indicated a willingness to incorporate any and all appropriate Best Management Practices recommended by experts...”

We believe that Mr. Rocque’s comments indicate a much lower level of comfort with the proposed Black Nubble project than the Kibby project. However, we encourage the Commission to read these comments and draw their own conclusion.

The other projects involve some impacts not present at Black Nubble. The Mars Hill and Stetson projects are located closer to residential areas. The Kibby project will involve some impact to rare plants, but these are described as “limited and inconsequential” by MNAP. The Kibby project area does contain potential habitat for the Northern bog lemming, but we believe that this has been appropriately avoided. However, these impacts pale in comparison to the much more extensive and significant adverse impacts that would be caused by the Black Nubble project.

#### **E. AMC’s Siting Guidelines**

AMC's General Policy on Wind Power<sup>34</sup>, originally adopted in 1996 and revised in 2006, sets forth the Club’s overall position on windpower development, and provides guidelines for evaluating specific windpower proposals based on seven criteria.

An assessment of the Black Nubble project area<sup>35</sup> relative to these criteria indicates few significant issues:

##### **1. OWNERSHIP AND LAND USE**

“Commercial windpower facilities should be located on private or already developed public lands. When additional infrastructure is required, impacts should be minimized. Most appropriate are sites that already contain the necessary infrastructure (roads, transmission lines, etc.). Public lands set aside for natural resource protection, scenic attributes and/or backcountry recreation should not generally be considered for windpower development, particularly if the construction of commercial windfarms would be incompatible with the purposes for which public land was set aside.

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<sup>34</sup> See <http://www.outdoors.org/conservation/wind/amc-wind-policy.cfm>.

<sup>35</sup> This assessment considers only the ridgeline turbine string corridor and access roads, and may not be fully applicable to the transmission line corridor. Indented material in quotes is taken verbatim from the policy.

Windpower development should be restricted to areas that have seen major commercial activities (e.g. agriculture, timber harvesting, etc.) and associated road building in the past or are likely to in the near future. Higher elevation areas where future timber harvesting is unlikely ("non-commercial timberland") should not be developed for windpower, since these areas will most likely remain relatively undisturbed in the future. AMC encourages windpower siting in areas where human development already dominates (e.g. agricultural and urban areas).

*Most suitable:* Private land with existing infrastructure and agricultural land. Developed public lands (e.g. municipal waste treatment facilities, school or hospital campuses, etc.), assuming that projects are at an appropriate scale for the site and do not seriously impact other major public values.

*Moderately suitable:* Private commercial timberland with infrastructure in relatively close proximity.

*Moderately unsuitable:* Private non-commercial timberland.

*Least suitable:* Undeveloped public land.”

*Assessment – Moderately unsuitable.* Though turbines 1 through 8 lie within recently harvested areas, turbines 9 through 18 (and especially turbines 12 through 18) are located on high-elevation land that has seen little to no harvesting and is unlikely to see such activity in the future, given the short stature of the timber and the very steep slopes.

## 2. SOILS AND TOPOGRAPHY

“Soils in potential mountain windpower areas are generally cryic (cold regime) and thus inherently more fragile than soils at lower elevation. Disruption of these soils will be a likely consequence of windpower development in high-elevation areas. Therefore siting criteria should aim to minimize soil disruption by siting these facilities in topographically suitable locations.

*Most suitable:* Sites with relatively even ridgelines and gradual approach slopes. Access routes and turbine strings should be able to avoid steep slopes (in excess of 15-20%) in order to prevent excessive sidecuts and fill areas. Potential for sedimentation of streams and ponds must be low.

*Moderately suitable:* Suitable sites (as defined above) but with small and unavoidable wet soil or steep slope areas where the impacts can be mitigated. Construction must avoid extensive cut and fill for individual turbine pads or road sections.

*Moderately unsuitable:* Sites with some inclusion of steeper slopes requiring significant terrain alteration on access roads and turbine strings.

*Least suitable:* Ridgelines with steep slopes, extensive areas of wet or seepy soils or subsurface drainage patterns, uneven topography or large bedrock outcrops requiring extensive terrain alteration along turbine strings and access roads.”

*Assessment: Least suitable.* The development of the upper Black Nubble access roads and turbine strings would clearly involve extensive terrain alteration on steep high-elevation cryic soils with a high potential for severe erosion.

## 3. ROADS AND ACCESS

“High-elevation areas may be the least accessible parts of an otherwise accessible landscape. Windpower facilities located in more remote areas may compromise the remote character of the site.

*Most suitable:* Areas with existing permanent and secondary access, including roads into and through the proposed site.

*Moderately suitable:* Areas with well-developed, permanent and secondary access in the vicinity of the site (i.e., lower elevations) but limited access within the site.

*Moderately unsuitable:* Areas with limited existing access in the vicinity of the site (i.e., few permanent roads or very low road density even in adjacent low-elevation areas).

*Least suitable:* Areas in which construction of the facility would have a significant impact on large areas that are essentially roadless.”

*Assessment: Moderately suitable to moderately unsuitable.* While the lower Black Nubble turbine string has an existing road in relatively close proximity, the upper Black Nubble turbine string would require an access road over two miles long with an elevation gain of over 700’. It is a stretch to consider this as having existing access “in the vicinity of the site”.

#### 4. VEGETATION AND NATURAL COMMUNITIES

“Commercial windpower facilities will generally be located in montane boreal forest or upper-slope northern hardwood forest. Potential sites could also encompass subalpine boreal forest, krummholz, alpine areas, or bare rock. In addition, these areas may include areas of high-elevation wetlands or unusual natural communities.

*Most suitable:* Agricultural lands and areas dominated by relatively common second-growth northern hardwood or spruce-fir forest types. Most preferable would be areas of younger hardwood forest showing obvious evidence of past harvesting.

*Moderately suitable:* Areas similar to the above but with some inclusions of wetlands, rare communities, or rare plant populations; construction must be able to be located so as to avoid disrupting these sites.

*Moderately unsuitable:* Mature second-growth spruce-fir forests as this habitat is in short supply across the northern New England landscape. Subalpine boreal forest with little or no commercial timber potential.

*Least suitable:* Krummholz and alpine areas or sites with extensive inclusions of wetlands or rare communities. Areas where no evidence of previous harvesting is present. Areas containing populations of rare plants where construction would threaten the viability of these populations.”

*Assessment – Least suitable.* The project will have an extensive impact on a pristine rare natural community.

#### 5. WILDLIFE

“Wildlife impacts must be addressed including the site-specific impact on species resident at the site (including small mammals, herps, and birds), the cumulative effect on wide-ranging species (e.g. lynx) and migratory birds and bats, and the potential for the onsite-project habitat modifications to attract species and put them at risk.

*Most suitable:* Areas away from major bird and bat migration routes and containing little or no known habitat for species of concern. Areas where local habitat has already been altered or disturbed by past activity.

*Moderately suitable:* Areas away from major bird and bat migration routes but containing known small-scale habitats for species of concern (such as certain small mammals or birds); construction must be able to be located so as to avoid disrupting these sites.

*Moderately unsuitable:* Areas with significantly higher-than-average passage rates for migratory birds and bats. Areas containing potential habitat for species of concern. Areas that have a high potential, due to habitat manipulation from project construction, to attract wildlife and put them at risk.

*Least suitable:* Areas containing extensive or critical habitat for species of concern that is known to be currently occupied, such that construction could not avoid impacting these sites or the species that utilize them. Areas identified as priority focus areas in state Wildlife Action Plans where development would degrade the habitat that was the rationale for delineation of the area. Large areas of mature, unfragmented habitat where this habitat is absent or uncommon in the surrounding landscape. Areas located along major bird and/or bat migration routes, which have a relatively narrow funnel across the landscape that intersects with a site.”

*Assessment –Moderately unsuitable.* The project area contains suitable habitat for Bicknell’s thrush, as well as passage rates for migratory birds that are notably higher than those recorded at other existing and proposed projects<sup>36</sup>.

## 6. SCENIC

“Any windpower development will have unavoidable scenic impacts. Assessment of impacts must consider not only impact on existing recreational areas but also the potential impact on areas with high potential for expanded recreational use in the future. Considering only current scenic impact may lead to a conflict with the goal of protecting remote areas by promoting siting in remote areas with high potential for expanded recreational use.

Scenic impacts should be evaluated according to their effect on actual or potential impact in areas where a natural-appearing landscape is important. Thus the impact in areas that already show extensive development (such as in the vicinity of towns or highways) should not be AMC's primary concern, though it may be important to the residents of these areas.

*Most suitable:* Areas where evidence of permanent human development is already a noticeable component of the landscape, e.g. agriculture, highly developed recreational areas like ski areas, etc.

*Moderately suitable:* Areas where the primary scenic impact is to the view from developed areas (roads, settlements); areas beyond the midground (approximately 5 miles) of current or potential public recreational areas that depend on a natural landscape for their appeal.

*Moderately unsuitable:* Areas within the foreground (less than ½ mile) of less intensively used public recreation areas (such as minor hiking trails).

*Least suitable:* Areas within the fore- and midground (approximately 0-5 miles) of major recreational use areas (such as the Appalachian Trail, state and national parks, Wild and Scenic Rivers, etc.), exceptions being where there is already evidence of extensive human development within the viewshed.”

*Assessment – Least suitable.* The project will have a major adverse impact on one of the most remote and spectacular stretches of the Appalachian Trail.

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<sup>36</sup> Refer to testimony of Jody Jones of Maine Audubon Society.

## 7. RECREATION

“As with scenic impacts, impact on recreational use must consider the likely closure of the project site to the public for safety and security reasons, and the project’s impact on the recreation experience. Existing and future recreational use should be included in the evaluation, as growth in recreational demand may mean the expansion of recreational activity into new areas in the future.

*Most suitable:* Areas with little current use and limited appeal for increased use in the future, and areas that will not create barriers to recreational trail corridors.

*Moderately suitable:* Areas where current use is limited to activities that co-exist well with managed forest landscapes (ex. snowmobiling, hunting), where current backcountry use is low, and where there is limited opportunity for increased backcountry recreation in the future.

*Moderately unsuitable:* Areas that contain scattered features with moderate backcountry recreational use (such as hiking trails to minor peaks), or where the project could pose a barrier to identified recreational trail corridors.

*Least suitable:* Areas that currently receive a high level of backcountry recreational use, or where the landscape features and location are such that the potential for increased backcountry use is high. Sites traversed by existing regional or long-distance trails.”

*Assessment – Moderately unsuitable.* While there is no trail to the summit, the peak is accessed by peak baggers (as was noted from the summit register observed during the site visit). As a prominent peak in one of Maine’s most significant mountain regions, the site could be a component of an expanded trail network in the Western High Mountains area, and thus does not qualify as an area “where there is limited opportunity for increased backcountry recreation in the future.”

*Assessment summary:* In none of the seven areas is the proposed project free from concern. In three areas it rates as Least Suitable, and in the other four it rates as wholly or partially Moderately Unsuitable. AMC has evaluated over a dozen proposed windpower projects using these criteria, and (with the exception of the original MMP proposal), this project rates as far worse than any other proposed project we have evaluated.

## V. **CONSISTENCY WITH LURC COMPREHENSIVE PLAN**

The Black Nubble site (in particular, the summit cone that is the site of turbines 11 through 18) involves most of the same resource concerns and impacts as the Redington Pond Range – impacts which led the Commission to vote to deny the original application. Black

Nubble is located in the same regionally significant mountain region as Redington. It contains the same pristine rare natural community that is a contiguous part of the same larger unfragmented mountain ecosystem as Redington. It involves a considerably greater extent of road construction on steep high-elevation slopes, and creates essentially the same scenic impact on the Appalachian Trail.

Because the resource values on Black Nubble are so high and relate so directly to LURC's core values, it clearly falls into the category of mountains unsuitable for rezoning and associated development. LURC's Comprehensive Land Use Plan (CLUP) makes clear that not all mountain areas are suitable for rezoning: "In light of the limited supply of mountain resources and their value, it is unlikely that all such areas will be considered suitable for rezoning and associated development by the Commission."<sup>37</sup>

#### **A. The Project is Inconsistent with the CLUP's Broad Goals**

The proposal should be denied in light of its inconsistency with the CLUP's three broad goals. The first addresses the need for sound planning, "Support and promote the management of all the resources, based on the principles of sound planning and multiple use, ...to ensure the separation of incompatible uses, and to ensure the continued availability of outstanding quality water, air, forest, wildlife and other natural resource values of the jurisdiction."<sup>38</sup> The applicant has failed to comply with several basic principles for sound planning including ensuring that the decision-maker has sufficient information so as to make sound decisions. For example, the bird and bat migration studies that have been conducted are inadequate and fail to meet the current industry standards<sup>39</sup>, the engineering plans lack the information necessary to making an informed

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<sup>37</sup> Comprehensive Land Use Plan [CLUP] P. 59.

<sup>38</sup> CLUP P. 134.

<sup>39</sup> See testimony of Jody Jones of Maine Audubon Society.

assessment of the extent of cut-and-fill that would be required (especially on steep slopes), and the alternative site analysis is inadequate and out-of-date.

The CLUP's second broad goal is to "Conserve, protect and enhance the natural resources of the jurisdiction primarily for fiber and food production, nonintensive outdoor recreation and fisheries and *wildlife habitat*."<sup>40</sup> The proposed wind development on Black Nubble would fragment and degrade an area of pristine rare subalpine forest habitat that is a contiguous part of one of the state's most significant montane ecosystems – an area that provides regionally significant habitat for a suite of bird species including Bicknell's thrush. In addition, the relatively high passage rates at Black Nubble put the migratory birds and bats that use pass through the site at serious risk.<sup>41</sup>

The rare natural community found on the summit cone of Black Nubble will be significantly degraded if the project is approved. In addition, the development of the site would degrade the recreational experience from one of the most spectacular stretches of the Appalachian Trail<sup>42</sup>. These are contrary to the CLUP's third broad goal, "Maintain the natural character of certain areas within the jurisdiction having significant natural values and primitive recreational opportunities."<sup>43</sup>

Natural character value is identified in the CLUP to include "the uniqueness of a vast forested area that is largely undeveloped and removed from population centers."<sup>44</sup> In fact, the CLUP says, "Remoteness and the relative absence of development are perhaps *the most distinctive* of the jurisdiction's principal values, due mainly to their increasing rarity in the

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<sup>40</sup> CLUP P. 134 (emphasis added).

<sup>41</sup> See the testimony of Jody Jones.

<sup>42</sup> See testimony of Appalachian Trail Conservancy, Maine Appalachian Trail Club, and National Park Service.

<sup>43</sup> CLUP P. 58.

<sup>44</sup> CLUP P. 114.

Eastern United States.”<sup>45</sup> Black Nubble is part of core of one of the most wild and undeveloped regions within LURC jurisdiction. Though it does not meet the strict criteria for inclusion in a roadless area as delineated by AMC, the summit cone of Black Nubble lies within an unroaded and mostly unfragmented area extending from Route 4, across Saddleback, The Horn, Saddleback Jr., the U.S. Navy property, Redington, and Crocker to Route 27<sup>46</sup>.

The application (Section 1, page 5) highlights the location of the project near the fringe of the jurisdiction as one of the primary factors justifying its suitability. We agree that, *all other things being equal*, a site near the fringe is more suitable than one in the interior. However, this is just one factor that should be considered, and clearly is not intended to override other issues and concerns. This factor is intended as a guide to protect the remote character of the jurisdiction – an issue that is far more complex than just distance from an organized town boundary. We believe that despite their position near the fringe of the jurisdiction, the unroaded and unfragmented core areas of the Western High Mountain region qualify as “remote” as the CLUP intends the term.

### **B. The High Values of Black Nubble Significantly Outweigh the Need for Windpower Development at This Site**

According to the CLUP, there is a need for balance when evaluating energy projects and that when balancing these competing values, protection of LURC’s core values weigh heavier. While “meeting the state’s energy needs with reliable energy supplies at the lowest possible cost”<sup>47</sup> is important, the need for energy, even renewable energy, does not trump the need to protect the other values within the jurisdiction. In fact, the CLUP goes even further to prohibit

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<sup>45</sup> CLUP P. 114 (emphasis added).

<sup>46</sup> See Exhibit B.

<sup>47</sup> CLUP P. 41. The CLUP recognizes the tension between competing values, “Large windpower installations, however, have the potential to conflict with other values of the jurisdiction, particularly those associated with mountain areas. . . .” CLUP P. 40.

energy development where the competing values put at risk are simply too high. The CLUP's Energy Resources Policy #2 guides LURC to "Prohibit energy developments and related land uses in areas identified as environmentally sensitive where there are overriding, conflicting environmental and other public values requiring protection."<sup>48</sup> The CLUP's Mountain Resources Policy #2 states, "Identify and protect high mountain resources with particularly high natural resource values which are not appropriate for most development."<sup>49</sup> The Western High Mountains region clearly qualifies for protection under these policies, and Black Nubble is an integral part of the core high-elevation area at the heart of the region.

### **C. Windpower Development Needs to be Sited in Lower Value Areas**

The application should be rejected because it recommends the siting of development contrary to LURC's policy of directing development towards sites of low, not high value. LURC's goal for the location of development is to "protect and conserve" important natural resources, to ensure compatibility of land uses, and to permit a reasonable range of development opportunities.<sup>50</sup> In its implementing policies, it makes explicit that it will "Guide proposals for major new [energy facilities]<sup>51</sup> to locations on the fringe of the jurisdiction that have ... *low natural resource values*, and are separate from incompatible land uses."<sup>52</sup> Black Nubble is not an area of low resource value, nor will the development be separate from other uses, and is thus inappropriate for development.

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<sup>48</sup> CLUP P. 136.

<sup>49</sup> CLUP P. 138.

<sup>50</sup> CLUP P. 140.

<sup>51</sup> CLUP P. 130.

## **VI. CONSISTENCY WITH LURC STANDARDS AND GUIDELINES**

We believe that the application fails multiple standards and guidelines that are part of the criteria for approval.

### **A. Failure to Satisfy LURC's General Criteria for Approval of Permit Applications**

Section 10.24 of LURC's standards and guidelines sets forth six general criteria for approval. We believe that the project fails to meet two of them. The third criteria is "*Adequate provision has been made for fitting the proposal harmoniously into the existing natural environment in order to assure there will be no undue adverse effect on existing uses, scenic character, and natural and historic resources in the area likely to be affected by the proposal;*". The project will not fit harmoniously into the existing natural environment, but will be an extremely intrusive and discordant element, both scenically and ecologically. It will also create undue adverse impacts, in particular to the scenic character of the region (and particularly to the Appalachian Trail) and to a rare and pristine natural community.

The fourth criteria is that the "The proposal will not cause unreasonable soil erosion...". The project will involve extensive disruption of very steep, fragile high-elevation soils that are clearly unsuitable for this scale of development. There will be a high risk of significant soil erosion unless extraordinary design and construction methods and vigilant and continuous maintenance is implemented. Another requirement for approval is that "The burden is upon the applicant to demonstrate by substantial evidence that the criteria for approval are satisfied...". We do not believe that the applicant has met this burden. Given the unique nature of this project, and the lack of any previous road construction projects that could provide a model for construction in these extreme conditions, we think that the burden of proof should be very high. The application includes no maps showing the extent of area to be cleared, no engineering

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<sup>52</sup> CLUP P. 140 (emphasis added).

drawings showing the extent of cut-and-fill or the erosion control measures that will be taken in specific areas. The “toolbox method” of road construction amounts to little more than “we will figure out what to do when we get there.” We do not believe that this rises to the level of “substantial evidence” considering the invaluable natural and recreational mountain resources at risk.

#### **B. Failure to Satisfy LURC’s Criteria for Rezoning of a P-MA subdistrict**

There are eight criteria that must be satisfied in order for a P-MA or other protection subdistrict to be rezoned to P-DP<sup>53</sup>. We believe the application fails to satisfy at least the first three of these. The first is conformance with the CLUP, which was discussed in Section V of this testimony. The other two are:

Substantially Equivalent Protection. The criteria requires that the project “Incorporates, where the land proposed for inclusion in the D-PD subdistrict is in a protection sub district, a substantially equivalent level of environmental and resource protection as was afforded under such protection subdistrict.”<sup>54</sup> Black Nubble is located in a mountain protection subdistrict (P-MA). Protection districts are areas “where development would jeopardize significant natural, recreational and historic resources, including, but not limited to, precipitous slopes, wildlife habitat and other areas critical to the ecology of the region or state.”<sup>55</sup> The P-MA zone is specifically designed 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.”<sup>56</sup>

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<sup>53</sup> LURC Chapter 10.21,G,8,b.

<sup>54</sup>LURC Chapter 10.21,G,8,b,2.

<sup>55</sup> 12 M.R.S.A. § 685-A(1)(A)

<sup>56</sup> LURC Chapter 10.23,G,1.

Accordingly, for the applicant to successfully petition for the rezoning of a P-MA subdistrict, the proposal must provide for a substantially equivalent level of protection of 1) wildlife habitat; 2) ecologically critical areas; 3) the natural equilibrium of vegetation, geology, slope, soil and climate; 4) water quality; 5) scenic values; and 6) recreational opportunities. Currently, LURC protects these six values by limiting the permitted uses in the P-MA zone. Uses with high impacts, such as new road construction or mineral exploration activities are only permitted by “special exception” where the applicant can meet two tests: “show by substantial evidence that (a) there is no alternative site which is both suitable to the proposed use and reasonably available to the applicant; (b) the use can be buffered from those other uses and resources within this subdistrict with which it is incompatible . . . .”<sup>57</sup>

The activities associated with the proposed development will have a far greater impact than the activities permitted in the P-MA, and would have an adverse undue impact on most or all of the six values listed above. While road construction is allowed, it is unlikely that the drafters of these standards envisioned anything approaching the magnitude or complexity of the proposed roads under these extreme conditions. The proposed road construction, which will entail extensive clearing, blasting and terrain alteration, will not “preserve the natural equilibrium of vegetation , geology, slope, soil and climate.” Its impact is more akin to mineral exploration, which is explicitly restricted to no more than two acres. The allowed structures (utility facilities and those associated with ski areas) are not equivalent to wind turbines.

The proposed development fails both of the tests listed above. The “no alternative site” test is discussed in the next section (“Best reasonably available site”). The proposal also fails the second test, as the impacts to a pristine rare natural community, high value montane habitat

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<sup>57</sup> LURC Chapter 10.23,G,3,d.

(especially for Bicknell's thrush) and the Appalachian Trail clearly cannot be "buffered" – they are a direct and unavoidable consequence of the proposed development.

The applicant has not and cannot show that its proposed rezoning will provide a "substantially equivalent" level of protection.

Best Reasonably Available Site. The project does not satisfy the LURC criterion that the project "Utilizes the best reasonably available site for the proposed use"<sup>58</sup>. As discussed in Sections V.D and V.E of this testimony, the proposed development would create a far greater level of impact to important natural resource values than any other windpower development proposed to date in Maine or across New England . We believe that most developers have done a reasonable job of identifying sites of relatively lower natural resource value – a primary reason that AMC has not yet opposed any other windpower project in New England.

The application states (Section 1.3.3, page 76), "Additionally, MMP has undergone an extensive alternatives analysis. Over the course of several years, Endless Energy looked at numerous sites and conducted a more in-depth investigation of fifteen sites in four states (Maine, Massachusetts, Vermont, and Rhode Island) to assess their viability as a location for a wind farm." MMP (then Endless Energy) applied to LURC for approval to install meteorological towers in October 1993. The alternatives analysis (which formed the basis for site selection) must have taken place well before this date. However, "viability as a location for a wind farm" in the early 1990s was much different than it is today. Advances in technology, increased energy prices, and public policies and subsidies for renewable energy development have greatly improved the economics of wind power and thus greatly increased the range of sites that are viable. Subsequent to the applicant's selection of this site, three other projects have been proposed in Maine, and a number of others across New England. All of these are located in

areas of lower resource concern, and most if not all would likely have been available to the applicant had he chosen to pursue them. Unless windpower development comes to a halt following the adjudication of the current applications (which we greatly doubt), additional proposals across the region are likely to come forth in the near future, most or all of which could have been available to the developer.

Even by the standards of 1993 the alternatives analysis is inadequate. Its primary conclusion was that mountains have the best wind resource. However, regarding the question “Why this mountain?”, the alternatives analysis discusses only those factors relevant to the applicant’s assessment of economic viability. “Environmental suitability” is listed as a factor in the screening process, but there is no information on what environmental factors were considered (other than location on existing conservation land) or how they were evaluated.

Whether the Redington/Black Nubble area was the best available site in the early 1990s is debatable, but is in any case irrelevant. The Commission must base its decision on how the project meets this criteria according to the conditions in effect at the time the application was submitted in 2006, and there is no information in the application that allows this to be evaluated. The applicant has clearly not demonstrated *based on current conditions* that “there is no alternative site which is both suitable to the proposed use and reasonably available to the applicant.” An inadequate alternatives analysis performed fifteen years ago does not come close to meeting the required burden of proof.

## **VII. CONCLUSIONS**

In light of the testimony presented above and by the witnesses for the other consolidated intervenors, we conclude:

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<sup>58</sup> LURC Chapter 10.21,G,8,b,3.

- The Western High Mountains region is the greatest assemblage of high elevation areas and high peaks in the state. It encompasses a concentration of unroaded, unfragmented and relatively pristine habitats that have few parallels in the state. The ecological, recreational and scenic resources of the area make it one of the state's two most significant mountain landscapes (along with Baxter State Park). It clearly qualifies as an area of "high mountain resources with particularly high natural resource values or sensitivity which are not appropriate for most development."
- The summit cone of Black Nubble (encompassing half of the proposed development forms part of the undeveloped high-elevation core of the region and possesses many resource values that contribute to the significance of the area (values similar to those found on the Redington Pond Range). Among these are the presence of a pristine rare natural community that is contiguous with a much larger relatively natural and unfragmented montane ecosystem, the presence of suitable habitat for Bicknell's thrush within one of the most significant habitat areas across the entire range of this species, and high visual prominence from long stretches (and some of the premier alpine vistas) of the Appalachian Trail.
- The proposed development would have an undue adverse impact on high mountain resources that P-MA zoning is intended to protect. It would fragment and degrade a pristine rare subalpine forest community and would have a severe and negative visual impact on one of the most spectacular stretches of the Appalachian Trail.
- The proposed road, turbine and transmission line construction, involving extensive clearing and terrain alteration of very steep slopes at high elevation on unsuitable soils, would create a significant risk of soil erosion. The proposed project dwarfs in

scale, complexity and risk anything ever undertaken in the mountains of Maine. Yet the application does not include any maps showing the extent of proposed clearing or terrain alteration (“cut-and-fill”). Without this information it is impossible to assess the impacts of the proposed construction.

- Black Nubble is clearly not the “best available site” for this type of development. It would have far greater impact on significant natural resource values than other windpower projects proposed in Maine or elsewhere in New England. The alternative site analysis included in the application is fifteen years out of date, does not reflect current technological, economic or environmental conditions, and includes no discussion of environmental suitability.
- The proposed project fails to satisfy many standards necessary for approval. It is in conflict with LURC’s Comprehensive Land Use Plan and with the general and specific criteria that must be met to rezone a protection subdistrict.

If LURC’s Comprehensive Land Use Plan and Land Use Districts and Standards are intended to protect any high mountain areas from development, they are intended to protect an area as significant as Black Nubble and the Western High Mountains region. We reiterate our belief that if this development is permitted it will set a precedent that will render P-MA designation essentially meaningless. We request that LURC deny the application.

**KENNETH KIMBALL PRE-FILED TESTIMONY**  
**ZP 702**

**EXHIBITS**

- A. Maps from Wildlife Conservation Society's Human Footprint/Last of the Wild analyses.
  - A-1. Human Footprint in the Eastern United States.
  - A-2. Last of the Wild in the Northern Appalachian – Acadian Ecoregion.
- B. Map of the Western High Mountains region
- C. Land cover map for western Maine.
- D. USFWS memo on SERE
- E. *An Ecological Study of the High Peaks Region of Maine's Western Mountains* (Peter McKinley). (Attached separately)
- F. Photographs (All photographs were taken by David Publicover on July 26, 2007, except for F-1, which was taken by Kenneth Kimball on July 14, 2007.)
  - F-1. Black Nubble from The Horn.
  - F-2. Undisturbed Fir-Heartleaved Birch Subalpine Forest community.
  - F-3. Undisturbed Fir-Heartleaved Birch Subalpine Forest community.
  - F-4. Natural disturbance in Fir-Heartleaved Birch Subalpine Forest community.
  - F-5. Natural disturbance in Fir-Heartleaved Birch Subalpine Forest community.
  - F-6. Natural disturbance in Fir-Heartleaved Birch Subalpine Forest community.
  - F-7. Fir waves on summit of Black Nubble.
  - F-8. Human disturbance in Fir-Heartleaved Birch Subalpine Forest community.
  - F-9. Proposed Lower Black Nubble Summit Road.
  - F-10. Proposed spur to turbine 16.
  - F-11. Proposed Upper Black Nubble Summit Road.

## EXHIBIT A

The Wildlife Conservation Society (WCS) has developed a global analysis of the “human footprint” on natural ecosystems<sup>1</sup>. This analysis combines information on population density, land use and land cover, infrastructure and other features to develop a relative scale of the intensity of human activity on the landscape. When seen at the scale of the eastern United States (Map A-1), the unincorporated territories of northern and eastern Maine stand out as the largest area of low human footprint in the eastern United States.

As part of the Two Countries One Forest initiative, WCS-Canada has developed a more refined human footprint analysis for the Northern Appalachian – Acadian ecoregion<sup>2</sup>. Among the information presented is the identification of the “Last of the Wild” – the 10 largest areas of low human footprint within each ecological subsection<sup>3</sup> (Map A-2). The primary mountainous regions within Maine delineated by the WCS are the Mahoosucs region west of Route 26, the Saddleback-Sugarloaf-Abraham region (including Redington Pond Range and Black Nubble), the Lily Bay-Baker-Whitecap region, and Baxter State Park.

These areas must be interpreted with caution. Within the large undeveloped portions of the Maine landscape, the primary drivers of the human footprint are timber management roads and harvesting patterns. Data on both of these factors is not fully up-to-date, and because of on-going road construction and the shifting nature of harvesting patterns the “lowest human footprint” areas within the working forest are likely to change over time. However, the “lowest human footprint” areas centered on mountainous regions are likely to be more robust, giving the lower suitability of these areas for road construction and timber management.

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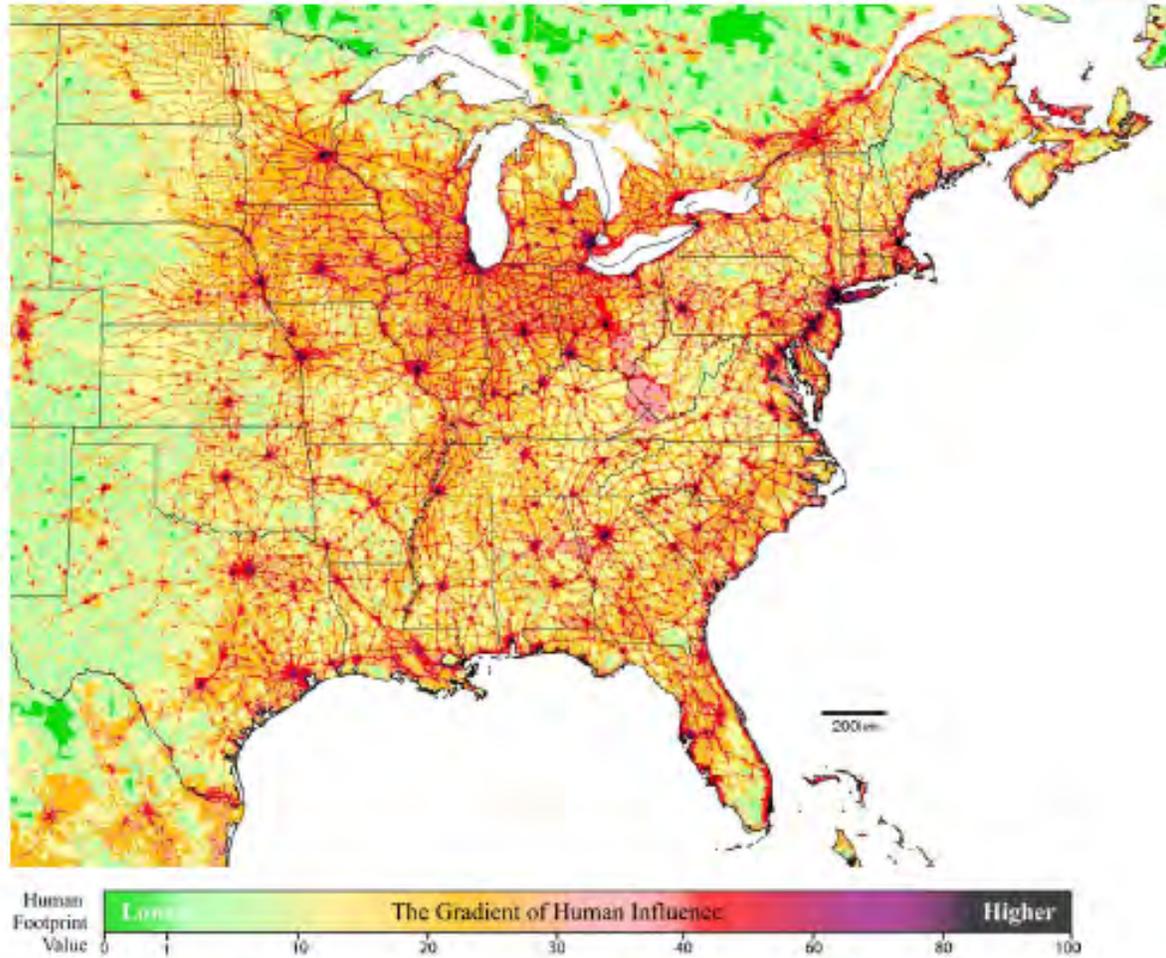
<sup>1</sup> See [http://www.wcs.org/sw-high\\_tech\\_tools/landscapeecology/humanfootprint](http://www.wcs.org/sw-high_tech_tools/landscapeecology/humanfootprint).

<sup>2</sup> See <http://www.wcscanada.org/humanfootprint>.

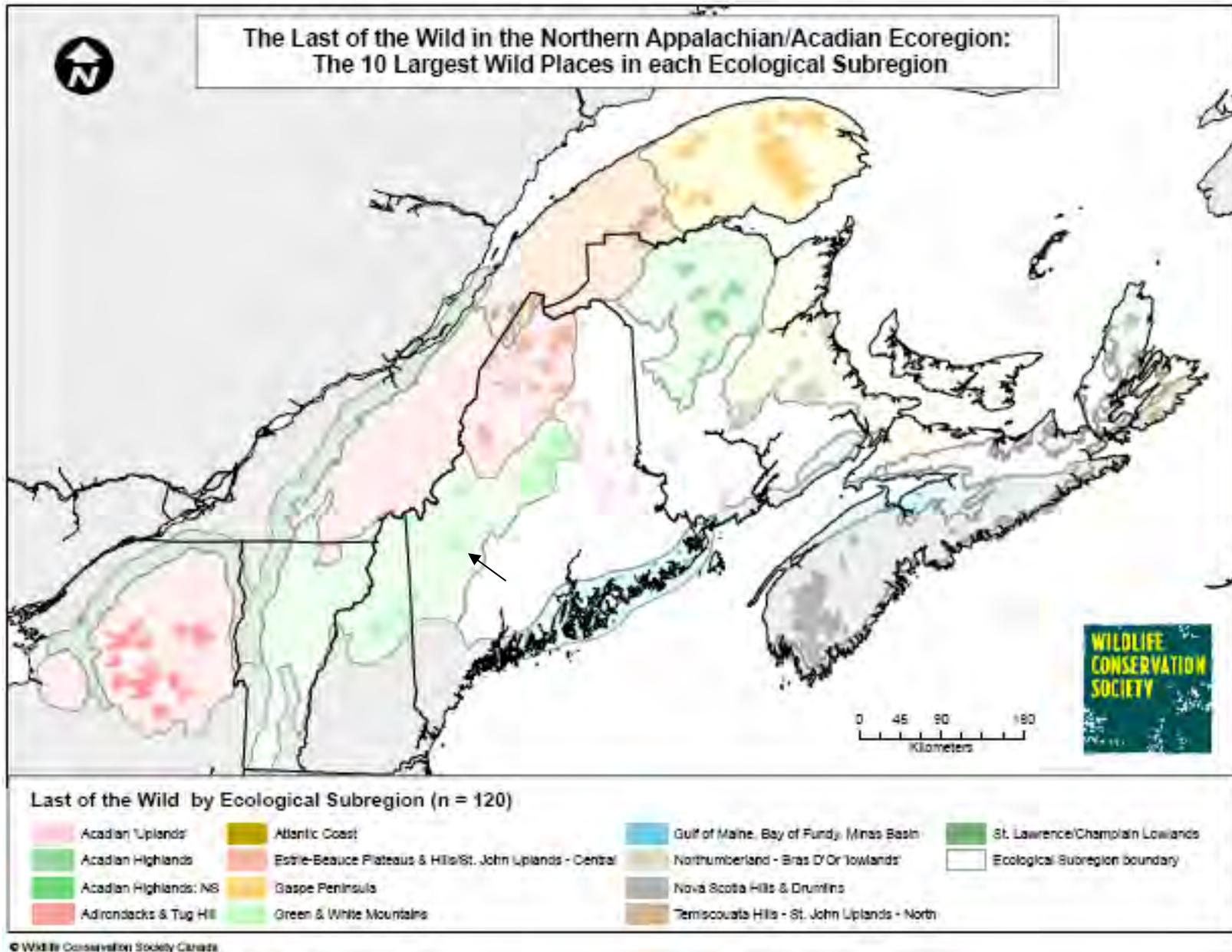
<sup>3</sup> See <http://www.wcscanada.org/media/file/LTW.pdf>.



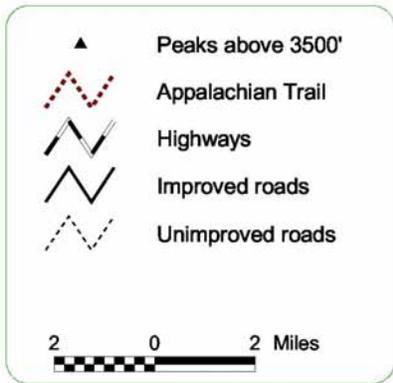
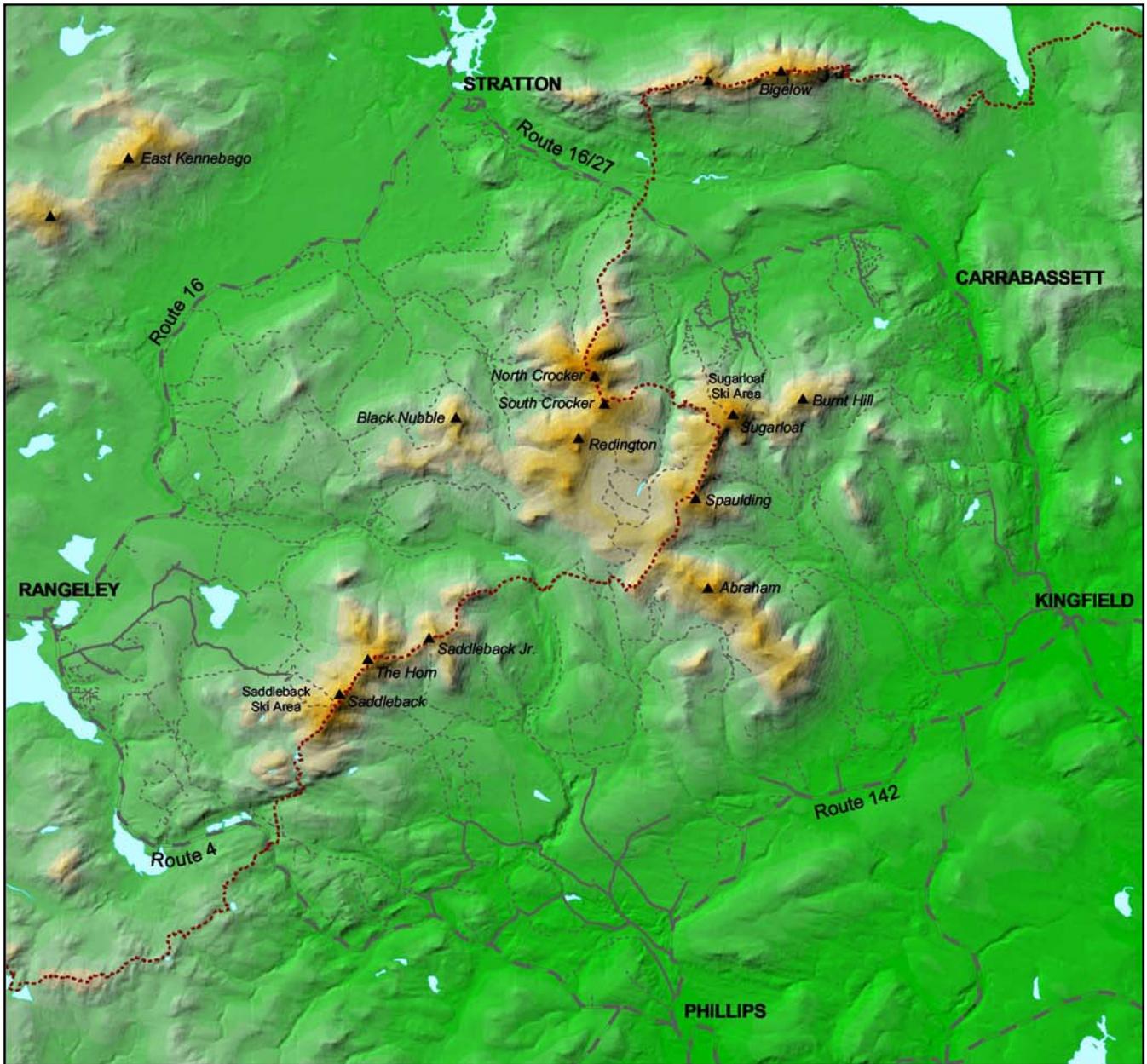
## The Human Footprint in the US East Coast



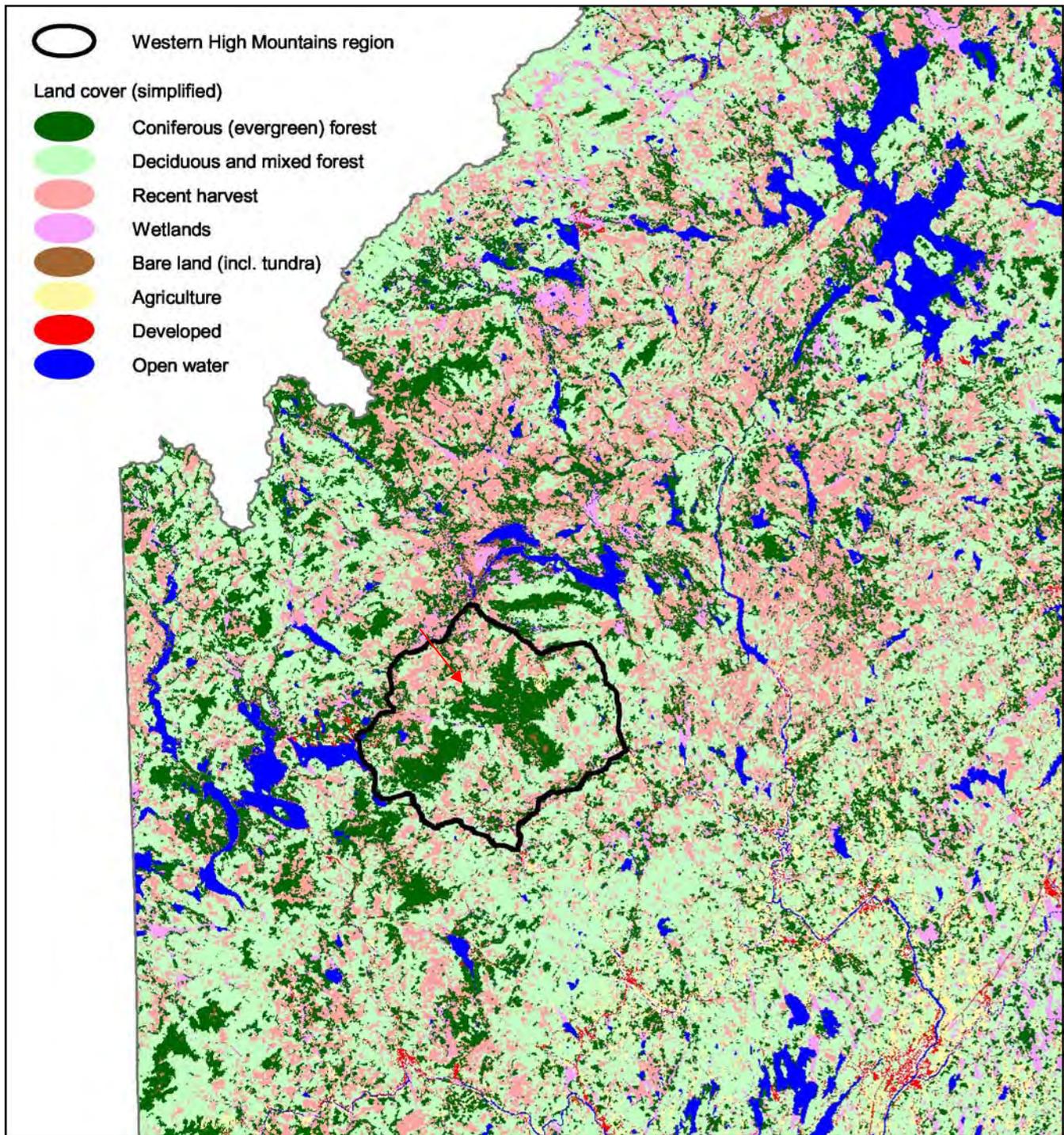
Map A-1. Human footprint of the eastern United States developed by the Wildlife Conservation Society. Areas of green and yellow represent those parts of the landscape with the lowest human influence. The unincorporated territory of northern and eastern Maine is prominent as the largest area of low human influence in the eastern United States.



Map A-2. “Last of the Wild” areas within the Northern Appalachian/Acadian Ecoregion identified by the Wildlife Conservation Society – Canada. The Saddleback-Sugarloaf region (including Redington and Black Nubble) (arrow) clearly shows up as an area of relatively wild character.



**EXHIBIT B.** Map of the Western High Mountains region. Lands in shades of brown lie above 2700'. Black Nubble is part of the unroaded high-elevation core of the region.



**EXHIBIT C.** Land cover map for western Maine, based on high-resolution 2004 land cover data available from Maine Office of GIS. The red arrow indicates the summit cone of Black Nubble. The project lies within the largest contiguous block of coniferous forest in western Maine. (The horizontal band south of Black Nubble shown as “Recent harvest” is actually successional vegetation following a fire that burned on the U.S. Navy property in 1962.)

## **EXHIBIT D**

Internal U.S. Fish and Wildlife Service memo describing the ecological values of the U.S. Navy property adjacent to the Black Nubble project area, and the high interest of the USFWS in transferring this property to conservation ownership.



# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
300 Westgate Center Drive  
Hadley, MA 01035-9589

In Reply Refer To:  
FWS/Region.5/MBSP-MB

SEP 28 2005

## Memorandum

To: Director

From: Regional Director, Region 5

Subject: Background Information from the Division of Migratory Birds for the Transfer of the U.S. Navy Survival, Escape and Evasion Training Facility to the National Wildlife Refuge System

A conservation proposal was submitted on August 16, 2005, by the National Wildlife Refuge System in Region 5 for a property known as the U.S. Navy Survival, Escape and Evasion Training facility (SEET property) in Redington, Maine that has been included in the 2005 Base Realignment and Closure list. The attachment provides background information from the Region 5 Division of Migratory Birds on the proposed no-cost transfer of the property to the U.S. Fish and Wildlife Service. The Division of Migratory Birds strongly supports the proposal based on the existing and potential value of the habitat on the property for migratory birds and other wildlife.

If you have questions or would like additional information, please feel free to contact Sherry Morgan, Assistant Regional Director for Migratory Birds and State Programs (MBSP), at 413-253-8610, or Andrew Milliken, Atlantic Coast Joint Venture Coordinator, Migratory Birds Division, MBSP, at 413-253-8269.

Attachment

cc: Paul Schmidt, Assistant Director, Migratory Birds

## Attachment

### Background Information from the Division of Migratory Birds for the Transfer of the U.S. Navy Survival, Escape and Evasion Training Facility to the National Wildlife Refuge System

#### Bird Conservation Priorities in the Atlantic Northern Forest Bird Conservation Region

The U.S. Navy Survival, Escape and Evasion Training facility (SEET property) is located within the Atlantic Northern Forest Bird Conservation Region. Bird conservation regions are ecologically-based units, as defined by the North American Bird Conservation Initiative (NABCI), for planning, implementing, and evaluating cooperative bird conservation efforts across North America. The Atlantic Northern Forest Bird Conservation Region (known as BCR 14) encompasses a largely forested area stretching southwest to northeast from the Taconic Hills and Adirondack Mountains of Eastern New York through most of Vermont, New Hampshire and Maine, Quebec south of the St. Lawrence River, and all of the Maritime provinces of New Brunswick, Prince Edward Island, and Nova Scotia. An international partnership led by the Atlantic Coast and Eastern Habitat Joint Ventures has been working together for several years to determine the bird conservation priorities and actions for this BCR. This effort culminated in a conservation plan entitled *Blueprint for the Design and Delivery of Bird Conservation in the Atlantic Northern Forest (Blueprint)*, approved by the joint venture management boards in July 2005.

The importance of the property to the conservation of migratory birds is indicated in the *Blueprint* by the number of priority species identified in the plan that use the property and by the inclusion of the property in or near priority geographic areas (known as focus areas) identified in the plan for landbirds, waterbirds and waterfowl. Of the 17 "Highest Priority" bird species identified in the *Blueprint*, at least 6 species would directly benefit from protection of this site. The higher elevation conifer forests on and adjacent to this site are at the center of the global distribution of Bicknell's Thrush, the region's only endemic bird species. This property likely hosts a significant portion—and some of the highest densities—of this species' entire global population. The late successional conifer forests across this site provide superior nesting habitat for the Bay-breasted Warbler. The area's alder swales and open areas (e.g., natural disturbance patches and any cleared areas used by the U.S. Navy) would provide valuable breeding and stopover habitat for American Woodcock. These same habitats also are used for breeding and migration habitat by American Black Duck and Canada Warbler. Both of these species are probably common throughout all the forest types on the property that are associated with wetter soil types, including small wetlands and beaver meadows. Wood Thrush are likely present at low to moderate densities throughout the mature and regenerating hardwood stands on the property. The four nongame species discussed above are also identified by the U.S. Fish and Wildlife Service (FWS) as Birds of Conservation Concern for BCR 14.

Similarly, nearly all of the 16 designated "High Priority" terrestrial bird species for BCR 14 are either common breeders or are likely to be found on this property, including (from most to least common) Yellow-bellied Sapsucker, Black-throated Blue Warbler, Purple Finch, Eastern Wood-Pewee, Rusty Blackbird, Veery, Olive-sided Flycatcher, American Redstart, Cape May Warbler, Boreal Chickadee, Chestnut-sided Warbler, Long-eared Owl, Chimney Swift, and Common

Nighthawk. Other priority species that are likely to be relatively common on part or most of the property include Blackburnian Warbler, Blackpoll Warbler, Black-throated Green Warbler, Northern Parula, Brown Creeper, Ovenbird, Common Loon, Wood Duck, American Bittern, Yellow-bellied Flycatcher, Gray Jay, Pine Grosbeak, Rose-breasted Grosbeak, Bald Eagle, Ruffed Grouse, Black-backed Woodpecker, Common Goldeneye, Northern Flicker, and Northern Goshawk. Some of these priority species likely are found throughout the SEET property in very high densities and some of these species are considered rare across the northern forest region.

The SEET property is within a landbird focus area identified in the *Blueprint* in recognition of the importance of the area to Bicknell's Thrush and the vulnerability of the high elevation forests in this area to habitat loss, fragmentation and degradation. The plan specifically identifies the acquisition of the lands in this focus area through fee or conservation easement and the management of high elevation timberlands for this species as priority conservation actions. The SEET property is also within a waterbird focus area known as the Nulhegan-Rangeley complex in recognition of the importance of the lakes and wetlands in this area to Common Loon, American Bittern, Pied-billed Grebe and other waterbirds. The property is within the Maine Inland Wetlands waterfowl planning area and within 6 miles of the Flagstaff Lake/Dead River/Kennebec River waterfowl focus area. This planning area and focus area are also identified in the *Revised Atlantic Coast Joint Venture Waterfowl Implementation Plan* approved in July 2005. The SEET property includes several hundred acres of wetlands, especially in its central bottomland portions, and this wetland complex includes a wide range of wetland types from open lake to emergent marsh, shrub-scrub wetland, and forested and shrub wetlands.

#### **Northern Forest Early Successional Habitat Initiative**

The transfer of the SEET property to the National Wildlife Refuge System (NWRS) is consistent with an Atlantic Northern Forest initiative for early successional species recently initiated through a cooperative agreement between the Northeast Region of the FWS and the Wildlife Management Institute. The purpose of the initiative and the agreement is to initiate a partnership to further research and implement forest management practices in the Atlantic Northern Forest to the benefit of American Woodcock and other early successional migratory birds. Including the SEET property in the NWRS will allow for management demonstration sites on this property in the immediate vicinity of a large number of privately held and managed forest lands to show how lands can be managed for early successional species while also maintaining late successional forest through reserves and forest management approaches.

#### **Need for Publicly Owned Reserves in Northern Forest**

Most of the SEET property is forested uplands, and the vast majority of the roughly 12,000 acres of habitat on the site is thought to be largely undisturbed and "pristine" with most of the forests in a very late-successional condition (or a late seral stage). Very old and largely undisturbed forests are extremely rare in Maine and other northeastern States because so much of the region was cleared for agriculture starting in the seventeenth century and has been heavily and repeatedly logged since the early 1900s. Based on their work in the industrial forests in Maine,

the Manomet Center for Conservation Sciences estimates that only about 5 percent of the forests in Maine are in a late successional stage; that the level of late successional forest is declining and that at current rates of loss, some species that depend on the late successional forest will be lost from much of the northern forest in the next few years. Even with forest certification and working forest conservation easements on privately held timberlands becoming more common, private forest landowners are not maintaining enough late successional forest. A network of strategically placed reserves owned by conservation agencies and organizations combined with forest management that allows better retention of late-successional habitats in working forests is needed. If transferred to the NWRS, the SEET property could serve as an important forest reserve and management demonstration site. The site not only contains a diversity of wetland and upland habitats, but those habitats have exceptionally high ecological value for birds and other wildlife because of the relatively pristine nature of the landscape and relatively late successional stage of the forests compared to the surrounding working forest lands.

The importance of this area as a possible reserve within the larger working forest landscape has been recognized by the Northern Forest Alliance (NFA), a coalition of conservation, recreation, and forestry organizations committed to protect the 26-million-acre Northern Forest region of Maine, New Hampshire, Vermont, and New York. The NFA's Western Mountains Wildland focus area contains 8 of Maine's 12 highest mountain peaks, most of which are either partly located within the SEET property (e.g., Redington Mountain) or within only 1-2 miles of the property (e.g., Abraham, Saddleback, Sugarloaf, and Crocker Mountains).

The southern half of the SEET property is bisected by the Appalachian Trail (AT), which is owned and administered by the National Park Service (NPS). This trail is one of the oldest, largest, and most important networks of recreation and conservation land in the entire United States. Other than a narrow corridor around the trail owned by the NPS, much of the AT winds through private and/or industrial timber lands in northern New England. Due to the size of the SEET property and the rarity of late-successional forests throughout Maine, the SEET property may be one of the most ecologically valuable tracts along the northern end of the AT. Therefore, its protection as a refuge would greatly increase the ecological value of the AT as a conservation corridor for plants and animals, in addition to its role maintaining the high recreational quality of the AT.

#### **Threats from Commercial Development**

Although the SEET property is in a relatively remote part of the world, the property itself is not far from major roads and developments or free from recreational and commercial development pressure. The property is only 4 miles west of Sugarloaf USA, one of New England's largest ski resorts, and major roads traverse the area. Other major ski resorts (e.g., Sunday River) are also nearby, and contribute to the region's increasing development for seasonal and/or second homes. For example, new condominium complexes are currently planned near both of the major ski resorts nearby. A number of wind farms have been proposed for mountaintops in western Maine. Adjacent landowners are mostly industrial land managers focused on regular and extensive timber harvesting.

**Summary**

The Division of Migratory Birds strongly supports the transfer of the SEET property to the NWRS due to the high value of the habitats on the property for migratory birds and other wildlife and the need to maintain ecological reserves managed for wildlife and to demonstrate sustainable forest management practices within the larger working forest landscape in the Atlantic Northern Forest.

**U.S. NAVY SERE SCHOOL PROPERTY - REDINGTON, MAINE**  
**(SERE - Survival, Evasion, Resistance & Escape School)**

**I. Natural Resources:**

The Redington tract includes an entire valley, essentially rim-to-rim. Approximately 97% of the property is forested. The remaining nonforested open area is predominantly valley-bottom wetland. There is also an alpine zone and a relatively small amount of developed area. Unlike surrounding lands in western Maine, the Navy tract has involved no active timber management. Wildlife and fish populations have been used as part of the survival training.

Over 300 acres of wetlands occur on the property, mainly located in the low-lying areas along Redington and Orbeton Streams. Extensive beaver activity has influenced the distribution of wetland habitats along the valley bottom, which include beaver ponds, associated marshes and sedge meadows, shrub swamps, northern white cedar swamp, and forested bog communities. Redington Pond, two major streams draining the valley bottom (Redington and Orbeton), and numerous small beaver impoundments on the property provide excellent trout habitat. Note that these areas have also been mapped by the Maine DIFW as Priority Waterfowl and Wading Bird Habitat.

A detailed inventory of wildlife abundance on the installation has not been conducted, but the property is known to support wildlife species typical of western Maine. Birds known to use the wet areas include woodcock, snipe, waterfowl (black ducks, wood ducks, ring-necked ducks, others), wading birds and shorebirds. Beaver impoundments and the associated wetland complex in the valley bottom support wetland-dependant furbearers, including mink, river otter, and muskrat. Furbearer management on the tract has included trapping of nuisance beavers in the vicinity of existing roads and culverts.

Moose are common. White-tailed deer and moose occupy, use, and travel through the entire project area at various times of the year. Field reviewers documented moderate levels of existing moose and deer use such as fecal pellets, browsing pressure, bark scarred trees and scattered game trails throughout the project area. Other typical mammals known to be present include snowshoe hare, fox, fisher, black bear, and coyote.

The tract contains scattered beech trees which provide hard mast (beechnuts) and soft mast (buds) used. Beech trees capable of producing mast are found in many stands within the property, and help support local black bear, ruffed grouse, wild turkey, deer, and other animal populations. Trout and other coldwater fish species utilize the variety of ponds and streams at the SERE School. To date there has been no formal fish inventory conducted; however, the fishery is considered to be typical of the ponds, streams and small brooks in the western mountains of Maine. Students catch brook trout and an occasional brown trout during survival training. There has been no transplant or fish stocking program.

At one time (pre-Navy), Redington Pond was considered to be an exceptional fishery for trout, and fishermen traveled from all over the region to fish it. Although the original

cribwork dam has deteriorated and the pond has decreased in size, a healthy native fish population continues to be observed in the pond, and also the streams on the property.

## **II. Current Use:**

The survival training mission requires a remote natural environment, isolated from human populations, with a minimal number of man-made facilities. Installation resource management objectives include sustaining dense forest cover and adequate supplies of naturally occurring survival foods; and conducting all activities so as to protect soil and water resources, wetlands and riparian zones.

The installation has been off-limits to the public. Hunting, fishing, and trapping have not been allowed except as a component of the survival training, because these activities could negatively impact the training mission. The survival techniques training course requires trainees to live off plant and animal life for several days. Under Maine DIFW permit, SERE students are allowed to utilize wildlife in and out of season. Only methods listed on the permit can be used to take wildlife. Survival foods include a variety of wildlife and edible plants, mainly deer, rabbits, squirrels, fish, birds, chipmunks, muskrats, beaver, other small animals, and various available plants. Students are taught to construct snares to capture small mammals, and to catch trout with makeshift materials.

## **III. Recreational Uses:**

Training occurs at least 40 weeks out of the year so there is limited opportunity for recreational use. For safety reasons, there has been no public access. Objectives for outdoor recreation are to provide opportunities for SERE School support staff and guests during time-off between training events. Guest passes are limited to immediate family members and active and retired military personnel. On occasion, depending on the SERE schedule, civic groups such as the Boy Scouts have been allowed access to the Redington Village for camping, on an extremely limited basis.

Camping has been allowed on the tract during non-training periods with exceptions: no camping allowed in sensitive areas such as the alpine zone, in the wetlands, and within 100 hundred feet of water bodies including streams. The trail system supports hiking, snowshoeing and cross-country skiing throughout the installation. Navy states that there are ample opportunities for watching a variety of wildlife at the facility.

Snowmobiles, ATV's, and motorcycles have been allowed on by permit only. In accordance with an Executive Order on ORV's (EO 11644), only certain designated roads and trails have been available for ORV's to ensure the protection of resources.

## **IV. Access and facilities:**

Access is good from the west side, via State Route 16 north out of Rangeley. The Navy owns a right-of-way over the Dallas Road, a public access road from Route 16 to the SERE School. Approximately 23 miles of gravel road exist throughout the property, well maintained and in good condition. Abandoned roads and created footpaths are scattered throughout the facility. Three trails are used extensively for student/staff recreation and

mission purposes. An abandoned railroad grade to the old Redington logging camp is now a trail that accesses the abandoned site from the southeast along Orbeton Stream. Other trails access Redington Falls from the Multipurpose Building Area as well as the Village Road. Another trail accesses the ledges in the northern portion of the property. None of these trails have been open to the public. A Visual Flight Rules helipad, located in the center of the Multi Purpose area, has been used for emergency and medical purposes.

Facilities are located in several developed areas. One area consists of the Multi-Purpose and Public Works Area, the largest developed area on the property (~2 acres). It includes a newly constructed barracks and an operations/maintenance, administrative, storage and other support buildings, with access and service roads. A mock prisoner of war camp about an acre in size is used in escape training scenarios. Another location with structures and a camping area serves as the orientation center for SERE students. There are several scattered small buildings such as a gatehouse and a few small shelters on the roadsides. The old abandoned Redington Village Site has a structure modified to provide temporary accommodations for instructors and students. Electrical power is provided to facilities through the use of diesel-powered generators.

#### **V. Background:**

In addition to hunting, fishing and trapping, lumbering was the first use of Redington Township lands, beginning around 1890. In 1956, the Arctic Survival School was established. In the 1960's the SERE School was established out of the earlier Arctic survival Training School. Training included cold weather survival, evasion from capture, resistance to interrogation and exploitation, and escape from confinement. For a 25-year period, from 1961, the Navy leased land from the Georgia Pacific Corporation to conduct SERE training. In 1986, the existing site of 12,466 acres was purchased, including 16 miles of access road and right-of-way, from Route 16 to the property.

## **EXHIBIT E**

*An Ecological Study of the High Peaks Region of Maine's Western Mountains* (Peter McKinley).

This report is included as a separate document.



F-1. Black Nubble as viewed from The Horn in the Saddleback range. The land between Black Nubble and the Horn lies on the U.S. Navy property; the USFWS memo on the property (Exhibit D) states that “the vast majority of the roughly 12,000 acres of habitat on the site is thought to be largely undisturbed and “pristine” with most of the forests in a very late-successional condition. The Black Nubble summit cone is contiguous with this relatively wild and natural area.



F-2. Undisturbed Fir-Heartleaved Birch Subalpine Forest community on north summit ridge of Black Nubble just below site of turbine 17; elevation approximately 3500'. Trees in this area were generally between 80 and 100 years old.



F-3. Undisturbed Fir-Heartleaved Birch Subalpine Forest community on south summit ridge of Black Nubble above met tower site of near turbine 14; elevation approximately 3500'.



F-4. Natural disturbance in Fir-Heartleaved Birch Subalpine Forest community on south summit ridge of Black Nubble just above site of turbine 13; elevation approximately 3400'. Note dominance of birch in overstory and structural complexity arising from disturbance.



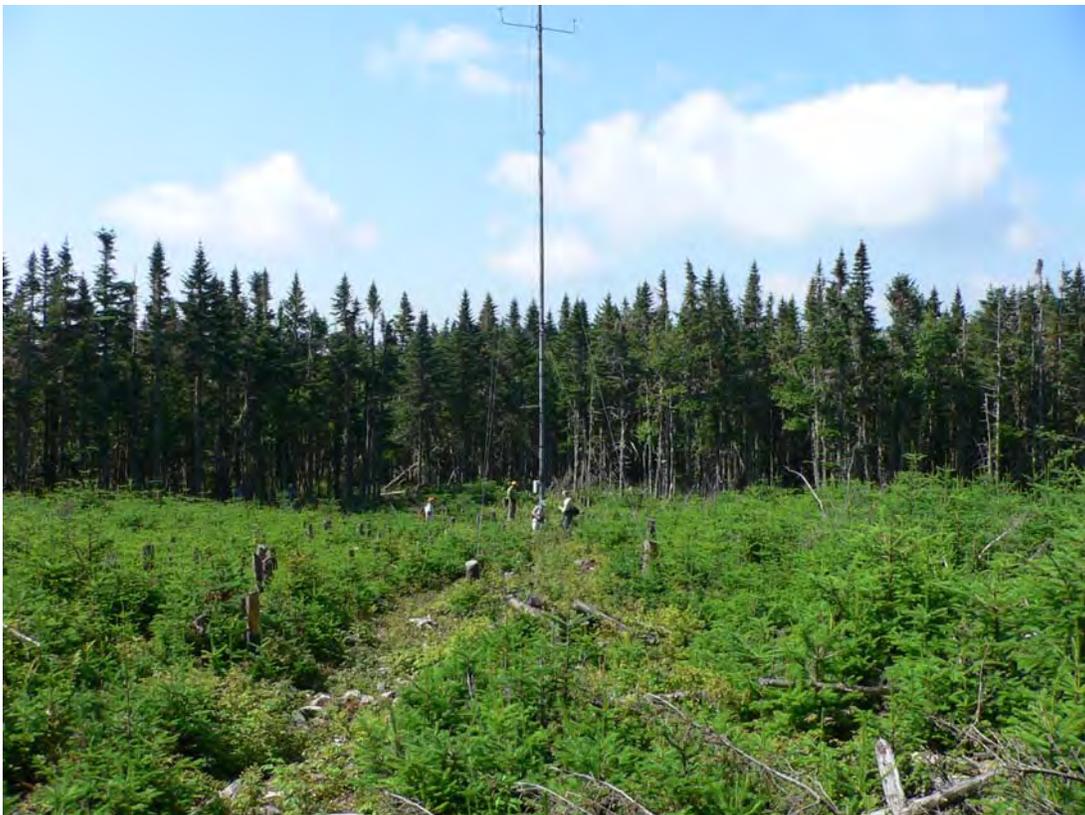
F-5. Natural disturbance in Fir-Heartleaved Birch Subalpine Forest community along spur to turbine 16; elevation approximately 3600'.



F-6. Natural disturbance in Fir-Heartleaved Birch Subalpine Forest community near summit of Black Nubble.



F-7. Fir waves on the northwest site of the Black Nubble summit.



F-8. Human disturbance in Fir-Heartleaved Birch Subalpine Forest community – meteorological tower opening above turbine 14. Note lack of structural complexity.



F-9. Proposed Lower Black Nubble Summit Road between turbines 9 and 11, station 2144+07, elevation approximately 3050'. Slope was measured at 55%.



F-10. Proposed spur to turbine 16, station 2143+56, elevation approximately 3575'. Slope was measured at 55%.



F-11. Proposed Upper Black Nubble Summit Road, station 2409+31, elevation approximately 3450'. Slope was measured at 45%.