

# **Report on the Plant and Animal Communities of the Mount Everett Summit**

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## **INTRODUCTION**

Representatives of the town of Mount Washington, Massachusetts contacted me in August 1999 to solicit my help in assessing the ecological importance of the plant community atop Mount Everett in the southern Taconic mountains of southwestern Massachusetts. The contact stemmed from an informal report submitted by forester Dr. Paul Van Deusen calling attention to the dwarf pitch pines growing on the summit of Mount Everett. Dr. Van Deusen suspected that the 15- to 20-acre site of pitch pines might constitute an old-growth community of dwarfed trees, which would make them valuable both as old growth and as a rare plant community. Over the course of a couple of visits Dr. Van Deusen extracted cores from two dead trees for analysis and from tree-ring counts and his observations concluded that the pitch pines were probably between 100 and 200 years old, a fact that subsequent analysis has borne out.

After an initial visit to the summit on September 11, 1999 with Eleanor Tillinghast and Morgan Bulkeley, and accompanied by Holyoke Community College professor Gary Beluzo and my wife Jani Leverett, I realized that the summit plant community was unlike any pitch pine community that I had previously visited. I was fascinated by the old-growth forms I observed in the exquisitely stunted pitch pines. They seemed to be natural bonsai forms. I had observed plenty of what I had considered to be stunted old growth pitch pines in sand-plain communities and on rock ledges, but I had never seen so many fully mature forms rising only one to three meters. I noticed the deep accumulation of organic matter around the pines. I also observed stunting in all other represented species. The stunting appeared to be the product of scant soils, frequent wind, snow and ice sculpting, and inadequate levels of moisture for sustaining growth. My initial impression from that first visit was that the Mount Everett plant community might indeed be an ecological treasure. I coordinated with Mr. William Rivers of the Massachusetts Department of Environmental Management [DEM] and notified Commissioner Peter Webber of my desire to gather data on the plant community. My conversations with Bill Rivers and e-mail communications with Commissioner Webber established the basis for proceeding with plans to obtain assistance from a number of highly respected scientists and naturalists to provide independent inputs. The following e-mail to Commissioner Webber set the stage for a three-month preliminary study of the plant and animal communities atop Mount Everett.

From: Bob Leverett [[SMTP:bleverett1@sphs.com](mailto:SMTP:bleverett1@sphs.com)]  
Sent: Tuesday, September 14, 1999 11:14 AM

To: [Peter.Webber@state.ma.us](mailto:Peter.Webber@state.ma.us)  
Cc: Beluzo, Gary; [orwig@husc.harvard.edu](mailto:orwig@husc.harvard.edu); [brivers@state.ma.us](mailto:brivers@state.ma.us);  
[pvandeus@tufts.edu](mailto:pvandeus@tufts.edu); [cwilliams@vaxa.clarion.edu](mailto:cwilliams@vaxa.clarion.edu);  
[eleanortillinghast@worldnet.att.net](mailto:eleanortillinghast@worldnet.att.net)  
Subject: Mount Everett

Hello Peter:

I thought it would be valuable if I gave you a personal assessment of my recent trip to the summit of Mt. Everett. In the interest of time, I'm sending the communication electronically. I will follow this e-mail with a letter, if you wish.

The trip was made on behalf of both DEM (Bill Rivers) and the citizens of the town of Mount Washington. The trip's purpose was to do a preliminary survey of the plant community on Mount Everett's summit. As you may know, Dr. Paul Van Deusen recently alerted us to the old growth characteristics of the pitch pines at the summit. I have also been made aware of the concerns of the citizens of Mount Washington with respect to potential disturbances to the plant communities on Mount Everett's summit that might result from current DEM plans to refurbish the lookout tower and add telecommunications equipment to the summit.

My HCC colleague Gary Beluzo and I made a preliminary investigation on September 11th. Both of us were quite impressed with what we saw. The pitch pines exhibit the characteristics of advanced age that we've come to expect in ridgetop communities that are continuously exposed to the climatic extremes of heat and drought in the summer, frequent winds in the spring, fall, and winter, and at times, fairly heavy precipitation in all forms. There is some pitch pine regeneration, but the plant community exhibits characteristics of succession that strongly suggest that most of the pitch pines are nearing maximum age for the growing conditions; i.e. we can consider them to be in their old growth phase - as a single species. A few carefully chosen trees need to be cored though and the results will tell the story. I've coordinated our plans with Bill Rivers. Coring also needs to be done for the other principal species of trees.

As a whole, the make up of the Mount Everett summit plant community is indicative of mountain top associations that are dominated by pitch pine, scrub (bear) oak, and gray birch. Altogether I documented fourteen species of trees on the summit - a richer association than I had expected. My current impression is that the Mount Everett pitch pine community is very fragile - not in the context of the hardiness of the individual trees, for they have endured it all, but in terms of the overall habitat that allows pitch pines to be represented on the summit.

In addition to Bill Rivers, our principal contact, we are coordinating our efforts with Harvard Forest, Mass. Audubon, and several key scientists involved in the Ancient Eastern Forest Conference Series, as well as key individuals in the town of Mount Washington. As you know, I am the original architect of and current co-organizer of the Ancient Eastern Forest Conference Series, and as such enjoy a productive association with many of the top forest ecologists in the eastern United States. They have been most generous in lending their expertise in assessing the significance of several plant communities in the Baystate.

Peter, Mount Everett's summit holds the promise of being an ecologically significant place, perhaps very significant, but we need much more input from scientists who are generalists and specialists. We

need input from botanists, forest ecologists, paleo-ecologists, ornithologists, mycologists, lichenologists, etc. to fully put the Mount Everett ecosystem into perspective. As we collect data, Gary and I will routinely forward it to Bill Rivers.

Awareness of the Mount Everett plant community comes at an opportune time as Gary and I continue with our old growth inventory for Bill. There is a more extensive ridgetop community that needs to be examined. Tom Wessels at Antioch New England Graduate School in Keene, NH, suggests that we need to carefully examine the summits of adjacent Taconic peaks such as Race, Frissell, Bear, etc. for comparison with Everett. I had planned to do that as part of the inventory, but it is reassuring to hear the suggestion from Tom. Incidentally, we've found other examples of ridgetop communities that are at least close to meeting our old-growth criteria, but some of these communities are harder to interpret than their protected cove/ravine equivalents. The continuous exposure of plant communities on exposed mountaintops often prevents the development of cohorts of truly advanced-age trees. However, if I read Tom correctly, we're sitting on some ecologically important places that, like Mount Wachusett, have escaped our notice because the harshness of the growing conditions has kept the trees stunted. We're accustomed to stunting in the higher elevations of the Catskills, Adirondacks, Green Mountains, White Mountains, and on Maine's Mount Kathadin, but truthfully, most of us haven't given much thought to natural conditions that might keep forests continuously stunted in southern New England. Our assumption has typically been that the lower and more southerly ridgetops of our part of New England are the way they are due principally to human influence. I have no doubt that is the case for many ridgetops, but not all of them. One of DEM's service foresters has confirmed as much in a recent conversation with Bill.

One final point is that irrespective of the outcome of our investigation, the summit of Mount Everett is a very special place aesthetically, and for many, spiritually. Isolated, high mountain peaks were almost always spiritual places for the Native Americans - and rightly so. I have no doubt that Mount Everett served such a purpose for the Mohicans. We are currently researching the human history of the mountain, European and Native American, and are developing some promising leads. Peter, I would be privileged to keep you and your staff informed of our progress and at the appropriate time would be willing to present you and/or Todd Frederick with a personal briefing. On a final note, Jani and I have done extensive traveling this summer and have visited state parks in about a dozen eastern states. We've been mightily impressed with parks like Hartwick Pines State Park in Michigan, Cook Forest and Ricketts Glen State Parks in Pennsylvania, and Beall Woods in Illinois. We will continue our visits for the remainder of the season and will be putting together a special report for you, courtesy of Friends of Mohawk Trail State Forest. It will be our contribution to helping the Massachusetts state park system, which we are privileged to make.

Bob Leverett

## **STUDY OBJECTIVES**

As a result of the initial visit and subsequent planning, we identified four principal objectives we hoped to meet by obtaining expert analysis from a team of volunteer scientists and naturalists:

1. Assess the old-growth status of the summit pitch pine community;
2. Document native species on the summit and search for unusual, rare, or endangered species of plants and animals;
3. Assess the overall ecological rarity and value of the summit plant and animal communities,

4. Determine the human history of the summit of Mount Everett: pre-settlement, colonial, post-colonial, and modern.

## **STUDY PARTICIPANTS**

Help was immediately forthcoming from key scientists who either visited Mount Everett or sent suggestions to us by e-mail. During the period of mid-September through early November, Mount Everett was visited by the following scientists, naturalists, officials of the town of Mount Washington, and DEM representatives:

Dr. Paul Van Deusen (Forester - Tufts University): 2 visits

Dr. Tom Wessels (Forest Ecologist - Antioch New England Graduate School): 1 visit

Dr. Rick Van de Poll (Mycologist - Antioch New England Graduate School): 1 visit

Philip May (Independent Lichenologist): 12 hours spent on summit over two days

Professor Gary Beluzo (Aquatic/Forest Ecologist - Holyoke Community College): 3 visits

Joseph Choiniere (Naturalist - Massachusetts Audubon Society): 2 visits

Heidi Roddis (Naturalist - Massachusetts Audubon Society): 1 visit

John Foster (Independent Naturalist): 1 visit

Conrad Ohman (Forester - DEM): 1 visit

Dr. David Foster, Dr. David Orwig, Glenn Motzkin (Forest Ecologists - Harvard Forest): 1 visit

Dr. Patricia Swain (MA Natural Heritage and Endangered Species Program): 1 visit

John Knuerr (Photographer): 2 visits

Eleanor Tillinghast (Official - Town of Mount Washington): Many visits

Morgan Bulkeley (Official - Town of Mount Washington): Many visits

Robert T. Leverett (Executive Director - Friends of Mohawk Trail State Forest): 4 visits

Jani A. Leverett (President - Friends of Mohawk Trail State Forest): 1 visit

Robert A. Leverett (Amateur archeologist): 1 visit

## **OTHER INFORMATION SOURCES**

In addition to input from the preceding participants who made field visits, The Nature Conservancy generously offered its data and observations from two recently completed studies of the Mount Everett

summit. Other information about Mount Everett and pitch-pine ecosystems was received via e-mail communications with a number of prominent scientists. These exchanges enabled the study team to reflect on their mission. The following was a particularly important e-mail received fairly early in the study phase that pointed to the need to study Mount Everett over a full cycle of the seasons.

Subject: RE: Mount Everett

Date: Tue, 28 Sep 1999 13:06:32 -0400

From: David Wagner <[dwagner@uconnvm.uconn.edu](mailto:dwagner@uconnvm.uconn.edu)>

Organization: EEB

To: "'[elianortillinghast@worldnet.att.net](mailto:elianortillinghast@worldnet.att.net)'" <[elianortillinghast@worldnet.att.net](mailto:elianortillinghast@worldnet.att.net)>

CC: "'[flouenstein@tnc.org](mailto:flouenstein@tnc.org)'" <[flouenstein@tnc.org](mailto:flouenstein@tnc.org)>

Eleanor,

Thanks for all the information--I have saved copies of everything. When Frank Lowenstein called me yesterday, I immediately thought the best reason to preserve the summit was its beauty and its preeminence in the landscape.

There are a few rare moths but nothing especially remarkable, but taken as a whole the fauna may prove to be substantially important. The most notable moth that we turned up was a large inland population of Gerhard's Underwing (*Catocala herodias*)--a beautiful moth and one that is listed by the State of Massachusetts as Threatened. Mt. Everett has the largest inland population in the State. Previously it was believed to be restricted to extensive scrub oak barrens near the coast. But again, I emphasize, when the community is taken as a whole, we may find that the "bald ecosystem" atop Everett (and Race) contains such a high percentage of elements that are uncommon to rare elsewhere that we will be able to make a strong case for its preservation and management.

Our report on last year's findings should be available within eight weeks. We have almost no data (nor chance of getting data) for early spring and late fall invertebrates. (All summer contract work focuses on things that fly in May to mid September. Costs, weather, and classes all work against me to carry out any sampling early in the season or late in the year.) If you (or anyone else) would be willing to collect moths, beetles, or flies at this time of year it could add significantly to what is known about the mountain. I would be happy to supply equipment, supplies, literature, identifications, etc.

Sincerely,

\*\*\*\*\*

David L. Wagner

Ecology & Evolutionary Biology

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This important information reminded us of the need to develop a two-track approach. We would gather as much data as possible on the pitch pines and those species identifiable during the September – November period. We would gear up for a longer study to be conducted starting in the spring of 2000. This preliminary report is based on the data gathered from September 11 – December 6, 1999. We recognized that a single season would probably not be enough to fully assess the ecological importance of not only Mount Everett's summit, but that of other summits in the southern Taconics that might

harbor similar plant and animal communities. Even though one brief period of visitation would not be adequate to document the fauna and flora of Mount Everett's summit, experienced eyes could make assessments that drew from many years of field experience. So we collected as much data as time would permit, before the onset of cold weather.

## **DATA COLLECTION**

As previously noted, data collection officially began with the September 11<sup>th</sup> visit. With benefit of guidance via the e-mail traffic we were receiving, we quickly settled on the following game plan:

1. Analyze the age structure of the summit's dwarf pitch pines and make comparisons to other pitch-pine communities and the reported longevity of the species;
2. Document as many plant and animal species as possible;
3. Analyze patterns of human and natural disturbance;
4. Research historical sources of information about Mount Everett's summit;
5. Visit the surrounding summits of the southern Taconics for comparison purposes;
6. Assess subjective aspects of Mount Everett's summit such as its panoramic view and relatively pristine nature;
7. Present the results in a formal report with the proper caveats to DEM and study participants.

During the three-month research and study period, Mass. Audubon Wachusett Meadow Wildlife Sanctuary Director Joseph Choiniere and I documented tree and shrub species. We identified fourteen and possible fifteen species of trees within a 20-acre area. Tree cores were extracted by Dr. Paul Van Deusen, Joseph Choiniere, Dr. David Orwig, Dr. Rick Van de Poll, Conrad Ohman, and myself. Philip May collected and analyzed lichen samples. Dr. Rick van de Poll also observed several lichen species and made tentative field identifications. Eleanor Tillinghast did the historical research and visited other southern Taconic summits to enable us to identify the extent of the pitch pine communities elsewhere and the relative uniqueness of the Mount Everett pitch-pine community. It was too late in the season to document many of the herbaceous species growing on the summit. We saw a number of species indicative of mesic to xeric conditions. Tree cores were studied with the use of dissecting microscopes. Harvard Forest laboratories used even more sophisticated techniques to obtain highly accurate ring counts.

The tree cores that I collected, sanded, and ring-counted with dissecting microscope had ages of 98+, 103, 110+, 125+, 150+, and 160+ years. The total pool of cores treated as a single sample consisted of 32. The numeric average of the 32 was 106 years. Some were cores from relatively young trees. Others were partial cores. On my third visit to the summit, I searched for the most mature specimens. The two previous visits to the summit had helped me to home in on the most likely candidates for advanced age. My conclusion is that 150 to 170 years represents the maximum ages of the Mount Everett summit pitch pines.

## **FINDINGS AND CONCLUSIONS**

The attachments to this report contain the specific observations and analyses of the study participants and outside contributors. Their comments speak for themselves. In my judgment, the conclusions I have drawn and presented below are well supported by the inputs of the participants. The reference to present-day existence of rattlesnakes is derived from a note in Joseph Choiniere's study report concerning conversations he had with former Mass. Audubon master naturalist Tom Tynning; an email from Tom Tynning; and, a letter from Frank Lowenstein of The Nature Conservancy to DEM Commissioner Peter Webber.

1. The 15- to 20-acre dwarf pitch pine plant community at the summit of Mount Everett is very rare within the region of New England. It appears to be equally rare throughout the Northeast. Other New England locations where dwarf pitch pines form a similarly conspicuous plant community include the nearby summit of Race Mountain, Mount Cardigan in New Hampshire, and Mount Desert Island in Maine. A smaller number of pitch pines are represented on Connecticut's Bear Mountain, another southern Taconic summit. How rare are these communities? Massachusetts has a land area of over 5,250,000 acres. Assuming that we discover a few more isolated pockets of the dwarf pines in Massachusetts that appear as a community instead of isolated trees on rock outcroppings, it is conceivable that we will eventually confirm between 40 and 50 acres of the dwarf pitch pine. I personally doubt that we will reach that number but, even assuming we did, we would still have only ninety-five ten-thousands of one percent of the land area of Massachusetts covered in dwarf pitch-pine communities; i.e. less than one thousandth of one percent of the land area.
2. The adaptation of pitch pines to the summit of Mount Everett appears to have developed over hundreds of years, even thousands. There may be a genetic component to the extreme dwarfing. A number of scientists have indicated that to be highly likely. The extreme dwarfing reflected in an entire community is more significant than an isolated stunted pitch pine. Experiments have shown that when seeds from the cones of these dwarfs have been planted in highly favorable growing conditions, the offsprings were also stunted.
3. The exact classification of the old-growth status of the Mount Everett pitch-pine community is debatable among experts. Ages of up to 160 years were obtained from the Mount Everett tree cores. The average age is between 110 and 120 years. If the normal maximum age of pitch pines is considered to be 200 years, as reported in various dendrology texts, then the pitch pine community is old growth. If the normal maximum age for the species is considered to be over 300 (perhaps as much as 400), then the Mt. Everett community may not represent an example of a true old-growth pitch-pine community, if such a community can develop for the summit conditions. Given the diminutive nature of the vegetative community, other old growth characteristics are present. Proportionality must be used in making this assessment. Consequently, in my view, the Mount Everett pitch-pine community can be classified as Class 2A old growth (most old growth characteristics present, no post-settlement human disturbance observed or historically recorded). DEM currently extends formal protection to only class 1A old growth (all old-growth characteristics present, no post-settlement human disturbance observed or historically documented, at least five acres in extent). The identification of the pitch pine community as Class 2A old growth does serve to emphasize its mature state and its natural state. Exhaustive historical research confirms that the summit was covered with dwarf pitch pines and bear oaks well back into the 1700s.

4. There are several rare to extremely rare plant and animal species that inhabit or frequent the summit of Mount Everett. Perhaps the single most important of the animal species is the endangered Eastern timber rattlesnake. The shy nature of this species further points to the natural state of the Mount Everett summit. Other rare species include a lichen never before identified and an extremely rare lichen named *Diploschistes badius*, both discovered by lichenologist Philip May. So far, southeastern Arizona and an area of Costa Rica are the only other known habitats for *D. Badius*. Dr. Rick Van de Poll made the field identification of the lichen *Cetraria icelandica*, an alpine to sub-alpine species, located at three places on the summit. Its occurrence on Mount Everett may push the southern limit of the lichen's range. This, again, points to the importance of the summit plant community. Two state-listed rare moths, and several uncommon moths were identified by scientist David Wagner. The Natural Heritage and Endangered Species Program lists several rare species for Mount Everett's summit. These findings are preliminary: clearly much more work needs to be done to be certain all rare and endangered species have been documented.
5. The summit of Mount Everett lies within a general area that is noted for its paucity of human development, its potential as a large scale wildlife sanctuary, and its historical importance to Native Americans. Of equal importance is the fact that Mount Everett lies in one of the very few places in Massachusetts that is not saturated with light pollution. This fact is not appreciated until NASA maps are viewed which clearly show light saturation of the night skies over virtually all of Massachusetts.
6. The summit of Mount Everett has long been recognized as one of the most aesthetic of the Baystate's mountains. The panoramic view of New York's Catskills to the west, the surrounding Taconic ridge, and the Berkshires to the east has inspired visitors for more than 200 years. The relatively pristine nature of the Mount Everett summit distinguishes it from the overburdened summit of the state's highest peak, Mount Greylock.

## RECOMMENDATIONS

1. DEM should institute special protections for the summit of Mount Everett in order to insure that its rare plant and animal species and its unsurpassed vista are fully protected.
2. The unique dwarf pitch-pine plant community of Mount Everett should receive special recognition by the Massachusetts Natural Heritage and Endangered Species Program. This plant community should be valued as a nature reserve and natural state treasure. The fact that the dwarf pitch pine communities cover less than one-thousandth of one percent of the Massachusetts land area means we cannot afford to jeopardize any of what remains.
3. DEM should take no actions that reduce the naturalness of Mount Everett's summit by excluding all kinds of construction and development. Activities, innocently undertaken with good intentions such as those that have compromised the summits of Mount Greylock and Mount Wachusett, should be our guides as what not to do.
4. DEM should undertake or support extended ecological studies of the southern Taconic summits to determine the extent of rare species such as *D. badius*.

5. DEM should monitor activity on the mountain and take every step to protect the rattlesnake communities that use the summit of Mount Everett.