

# *Antioch Comes to Gray Knob: 15 Years of Alpine Field Studies*

*By Dick Fortin*

A preliminary hike to Gray Knob to inspect the study plots and to meet the Knob's caretaker frequently solicits the comment from him "I heard about the Antioch group". We can only hope that previous caretakers have passed on good words regarding Antioch.

Antioch's Alpine Flora field study has been an annual endeavor since the late 1980's conceived and directed by Dr. Rick Van de Poll. The weeklong class has focused on permanent plots in the Gray Knob area as well as plant communities on and around Mount Adams and Mount Jefferson. The alpine zone offers a unique opportunity to view plant community distribution on a small scale related to snow cover, wind, elevation, fog, and atmospheric moisture. The class focuses on plant identification, recognizing plant distribution based on the previously mentioned abiotic factors and implementing sampling procedures in sometimes less than ideal conditions.

For some students this is their first introduction to the White Mountains; for others it is their first time above treeline. For some of the more avid hikers it is frequently an opportunity to delve into alpine plant life and the ecology of high mountain ecosystems. For the seasoned winter climber it is an opportunity to connect the variations in snow cover they are so familiar with to the distribution of plants such as those in the heath family that require the protection that snow has to offer.

Our plant community studies build on work that Lawrence Bliss completed in the 1960's on Mount Washington and the recent work done by Charlie Cogbill and Dan Sperduto. By the end of the week students can readily distinguish *Diapensia* communities and their windswept environment, snowbank communities and their associated deep snow / late melt conditions, heath / rush communities and their snow cover / better drained soils requirements and all the myriad other combinations. Students quickly learn that it only takes a small change in the microclimate to effect a change in the associated plants.



All our time is not devoted to science. Evening discussions center on wilderness ethics, hiker impact, and alpine stewardship. The week seldom passes without the group experiencing an event such as cell phone use on the summit of Mount Adams, or a group of hikers trampling off trail and through plants that have been our focus of attention. And of course there is always the question of whether or not facilities at higher elevation are appropriate.

Does the information we have collected over the years point to any changes? Due to the limited data it is difficult to analyze any long-term trends. In the short term there have been some noticeable changes, some of which are related to the proximity of the plots to Lowe's Path and others to well-intentioned grad students conducting plot work.

In a plot located within inches of the trail yearly data shows a reduction in vascular plant coverage and relocation of loose rocks. In one plot just off the Knob new rocks have mysteriously appeared with the only possible explanation being that a cairn was dismantled and thrown inadvertently into one of the permanent plots. An increase in vascular plants in a third plot may be related to the closing of a dog leg trail with brush. A lesson we have learned over the years is how much of an impact we have while conducting these weeklong visits. Kneeling on a "Thermarest" in bilberry is not enough to protect these plots. Fortunately the site is recovering, albeit it has required a number of years without observation.

This observation has forced us to consider a change in protocol. From now on we will not be sampling the historic sites annually but rather we have located other sites that not only have the plant community characteristics we want but more importantly have easy access and lots of rocks to step on. This discussion is ongoing as to whether permanent plots are appropriate or not and whether random plots merely spread out the impact.



One can't help but come away with a greater appreciation and respect for the alpine zone after a week of sunsets at the Quay and an extended period above treeline. That can be seen by the following statements students have included in their final papers.

"Ethics while traveling in the alpine area was an important focus of this course. The importance of protecting this environment was reinforced as time spent on hands and knees learning how fragile the ecosystem supporting the communities truly is."

"Though bug bitten, wet and wind blown, we were certainly enlightened from the experience."

"It is not enough to study alpine communities, but to promote stewardship and the enjoyment of them as well."



"Focussing just on two plots of such a small size helped us to grasp some of the complexity of the interrelationships at work and to appreciate the adaptations plants have developed to survive this harsh environment."

"This experience (final presentation) for me was a fitting conclusion to a week of learning about the delicate balance of life in the rugged and stark beauty of the Presidential Range. My hope is that I am able to continue this learning process in years to come and that I can share this knowledge and deep appreciation fully with other travelers above treeline."