

Study of Flora on the Southern Slope of Mount Monadnock

Technical Bulletin

Abstract:

A vascular plant inventory was conducted on the SE aspect of Mount Monadnock between 1500 feet and the summit from May to September 2009. The goal was to document the current flora of Mount Monadnock through herbarium specimens and



photographs establishing baseline data in anticipation of the botanical changes occurring due to climate change. The inventory includes all ferns and fern

allies and angiosperms observed on the mountain. In addition, the current inventory was compared to historical records found in regional herbaria and to the 1975 flora by Henry Ives Baldwin. A total of 223 species were observed on the mountain, of which 187 are native to the Monadnock region. Only a few species are abundant at collecting sites, the majority (71%) were found either infrequently or rarely. Most introduced species are dicots. Families with the greatest number of taxa include the Asteraceae, Cyperaceae, and Rosaceae. Of 218 species recorded for Mount Monadnock by Baldwin (1975) I observed 152 plus 71 additional species not recorded by Baldwin. This flora will contribute to a baseline flora that will help monitor how climate change affects the

species composition of Mount Monadnock as well as provide an inventory that will aid in management decisions at Monadnock State Park.

Introduction:

To help provide an updated flora and baseline data for future changes in the flora of Mt Monadnock I conducted a vascular plant inventory of the SE facing slope from 1500 ft to the summit of the mountain. My flora built on previous work done by students in the Monadnock Ecological Research and Education (MERE) project. MERE, based out of Antioch University New England in Keene, New Hampshire is run in partnership with Monadnock State Park, Monadnock Advisory Commission, Society for the Protection of New Hampshire Forests, and the Town of Jaffery, New Hampshire to study Mount Monadnock's ecological patterns and processes relating to climate change. Several graduate students in the Environmental Studies program at Antioch have done their Master's research in part to fulfill the goals of MERE's program. My flora project and continues the efforts of



previous graduate researchers to document the species currently present on Monadnock and provides an educational reference for researchers and land managers in the future.

Methods:

Forty-three GPS points were plotted within the study area and the majority of plant species collected and observed were taken from these sites (Figure 1). The GPS sites were placed in areas where the observed species were different than the previous points, in an effort to document all the known plant communities. Elevation was noted with a topographical map and an altimeter for each site. All species were

documented within an approximately 50 foot radius of the site. Whenever possible, enough material of each species was collected to create three specimens. If a rare or uncommon species was encountered, a

photograph was taken to act as a specimen for distribution. I visited several sites multiple times in an effort to catch different plants in their peak flowering season. At each collecting site a visual approximation was made of the abundance of the 5 species observed. Also, each species was assigned to one of five abundance rank categories based upon the percent of collecting sites where each species was found.

Results:

A total of 223 taxa were identified during my field season May-September 2009, with 230 different plant specimens collected. Only 8.5% of the species occurred either abundantly or frequently at collecting sites. 71% of species occurred either infrequently or rarely, including 35% of species that were recorded at no more than two collecting sites. The 223 taxa

surveyed are distributed into 142 different genera (Table 1). One hundred eighty seven (187) of the taxa are native to the Monadnock region and 36 are introduced species (Table 1). The majority of the introduced species are dicots, a total of 29 taxa. Dicots also make up the highest number of native species, 114 out of 223. Families with the most number of taxa include the Asteraceae at 13.2 % of all species observed, the Cyperaceae at 13.6%, and the Rosaceae at 6.6 %. Ericaceae was at 5.8%.

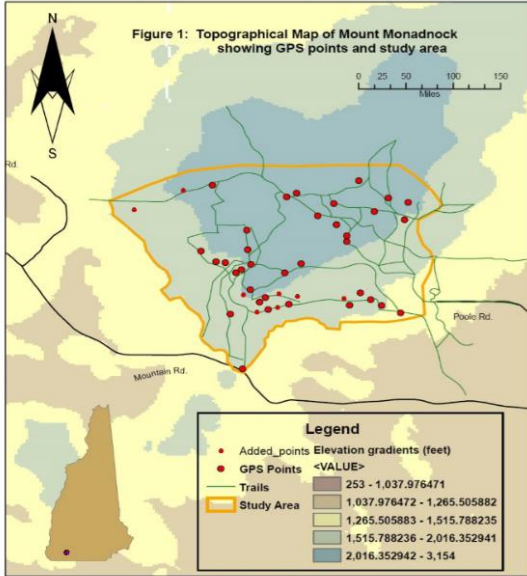
Discussion:

First of all, I would recommend that an expert on Graminoids look at the sedges, grasses, and rushes found on Mount Monadnock, as I don't feel my treatment of this group of plants is entirely comprehensive or accurate. Naturally a botanical survey of the northern slope of the mountain could complement my flora of the southern slope as would a more exhaustive survey of the summit and a survey of Thoreau Bog. Finally, I would recommend that surveys of other mountains in the region be completed so that they can be compared with Monadnock's flora. I noticed several species that David Boufford had collected on Gap Mountain which he had also collected on Mount Monadnock,

many of which were less common species. Having a bigger picture of what the mountain flora of the



region is like will help determine how climate change is affecting the region.



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