**New England Botanical Club – Minutes of the 1022nd Meeting**
**1 December 2006**
Robert Bertin, Recording Secretary *pro tempore*

The 795th meeting of the New England Botanical Club, being the 1022nd since its original organization, was held on Friday, December 1, 2006, in the Lecture Room of the Fairchild Biochemistry Building, Divinity Avenue, Cambridge, MA. There were 46 members and guests in attendance.

Tony D'Amato shared his doctoral research on the ecology of Massachusetts old-growth forests in a talk entitled "Old-growth forests in Massachusetts: Lenses into past forested landscapes of the Commonwealth." Old-growth forests have been defined in various ways. Defining features often include functional considerations, specifically the lack of substantial human impact, and they also include various structural attributes, such as a wide range of tree sizes, abundance of coarse woody debris, and complex structure. Such forests are important in providing a reference point for understanding natural processes, for designing conservation and restoration strategies, and for protecting biodiversity, although we know of few northeastern species that are dependent on such forests.

Before the arrival of European colonists, most of New England was covered by old-growth forests. These forests had been so decimated by the mid-twentieth century that noted ecologist Frank Egler declared that no pre-colonial forests remained in southern New England. Fortunately, he was not quite correct, because over 450 ha of Old Growth have been identified in 28 stands in Massachusetts, though these comprise less than 0.1% of the state's original forest. The remaining stands appear to have been spared by some combination of steep slopes, inaccessible locations, an undesirable species mix for timber harvesting (with hemlock often prominent), and luck.

In his study, Tony attempted to characterize the structure and dynamics of remaining old-growth forests in Massachusetts and to contrast these with characteristics of nearby second-growth stands. Study sites included 18 of the largest remaining patches of Old Growth, all west of the Connecticut River, and eight nearby second-growth sites.

The old-growth forests contained a particularly high frequency of hemlock, which was the dominant species at 16 sites. Old-growth stands also contained a broader range of tree sizes than did second-growth stands. The oldest tree for which age could be determined was a hemlock that was at least 489 years old. The oldest red spruce was 414 years old, and the oldest red oak, black birch, and yellow birch were between 330 and 380 years old. Larger trees in the old-growth stands often exhibited tertiary bark and distinctive branching, with several large, gnarled branches emerging from the top of a relatively unbranched trunk. Coarse woody debris was abundant in Old Growth, averaging 130 m$^3$/ha, over four times as much as in second-growth stands. Old Growth also contained higher measures of shrub and herb cover and higher densities of seedlings and saplings than second-growth sites. Especially common in Old Growth were *Viburnum lantanoides*, *Trillium undulatum*, *Trientalis borealis*, *Taxus canadensis*, and hemlock seedlings.

Old-growth forests were dominated by small-scale disturbances, with an estimated average of 5% (and maximum of 26%) of the canopy disturbed per decade. Several larger disturbances have left their traces in these forests, including a hurricane in 1788, severe thunderstorms in the late 1860s, and a severe ice storm in 1942. The extent of disturbance in the past century is reflected in the volume of coarse woody debris, some of which has persisted for over 50 years.

Many of the old-growth parcels included in Tony's study are under state ownership, and it is hoped that acquisition of the remaining parcels will be a priority of future land acquisition efforts. Tony's work will contribute to a sound scientific basis for understanding and conserving both the old-growth parcels themselves and nearby land.