LAND USE HISTORY AND FOREST SUCCESSION ON LONG ISLAND, MAINE

Kristen A. Hoffmann, Alan J. Kimball, and Jeremy S. Wilson

Department of Forest Management, 5755 Nutting Hall, University of Maine, Orono, ME 04469

kristen.hoffmann@umit.maine.edu

Disturbance histories are important factors in determining the composition and structure of today's forests. Not least among these disturbances is land-use history, due to its widespread and long-lasting impacts. Land clearing for Maine peaked in 1880 at 6.5 million acres. This was almost half of Maine's forested land. The very first settlements in Maine were on the coastal islands due to their accessibility. Therefore, Maine's islands contain some of the longest-impacted areas of forest.

Long Island is located in Blue Hill Bay, west of Blue Hill and east of Mount Desert Island. It is 4.5 miles long and 2 miles wide at its widest point, encompassing 4,555 acres. It was first settled in 1779 and grew to a population of about 200 year-round residents. The primary occupation on Long Island was farming, which included raising livestock, mainly sheepherding. Lumbering, fishing and a granite quarry provided supplemental livelihoods. By 1920 all of the residents of the island had moved to the mainland, leaving only a few summer camps scattered along the coast. A limited-use easement on 4,312 acres was acquired by Acadia National Park in 1995.

The objectives of this study are to: 1) establish ownership boundaries and their respective land-use histories; 2) quantify vegetation coverage and variability for each property; and 3) correlate ownership boundaries and land-use histories with current forest succession patterns. These objectives are being accomplished by historical research and field studies.

Historical research consists of examining deeds from the Hancock County Registry of Deeds, various readings and publications, interviews and visits to historical societies in the area. Tentative boundary lines, based on the deeds were plotted with GIS software and loaded into a hand-held GPS unit. These were then taken into the field to help guide the search for physical evidence of the property lines and homesteads. Any barbed wire, rock walls, foundations and such were geo-referenced and compared to established properties. Thirteen adjacent properties were delineated using the deeds' metes and bounds descriptions. Cellar holes were found for each property, as were wells for all but one.

To obtain vegetation and information, a one-sided variable width transect with a BAF 75 prism was used. Species, DBH and condition class were recorded for all live trees larger than or equal to 0.5″ DBH. The species, diameter, transect line intersection and decay class were also recorded for all dead and downed trees with a diameter larger than or equal to 6". Coverage descriptions, including the presence of ledges, blow downs and fern patches, were recorded for every 100 feet of the transect. This information is being processed using FlexFIBER, an inventory and growth modeling software. Seventeen transects on ten properties have been completed, documenting dramatic transitions in vegetation, suggesting that this technique is useful and appropriate for this application.