

# Northern Hardwood

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**Project Subject/Title:** Site Quality Assessments in Northern Hardwood  
**County:** Vilas, Oneida, Forest, Florence, Langlade, Lincoln  
**TRS:** Various

**Contact Person:** Colleen Matula, 715-358-9208  
**Type Of Prescription:** Stem Analysis/Site Quality  
**Year Initiated:** 2003

## **Abstract/Prescription:**

Site quality assessments in northern hardwood stands were conducted combining site index and stand history data for the Headwaters Area. Approximately 3 –4 stands were selected in each of the six counties. In each stand 3-4 dominant/codominant hardwood trees were selected for destructive sampling. Before felling, DBH was measured. After felling, the height of each tree was measured and a cross section (disk) was cut from the tree. Total age was obtained by counting rings on the disk and adding 4 years.

Carmean's polymorphic site index curves were used to determine the site index for each tree/site. Other stand data such as habitat type, defect and soils were gathered. In addition, the Forest Service- Forest Inventory and Analysis site index data from plots (over 1,000 plots) within the Headwaters area was compared.

## **Results:**

Results from the DNR stem analysis: Of the 53 trees that were measured, approximately 18% (10) had a site index <55; 66% (35) had a site index of 55-70; and 15% (8) had a site index >70. The habitat types in the sample were AVVb, ATM, ATD AOCa and AHI. Many of the stands were harvested only once since their origin and some defect was observed throughout the stands. Surprisingly, over 75% of the samples came from good quality hardwood sites based on the site index values. Though this was a very small sample size for the area, it still proved to be one good tool to consider in assessing stand quality.

Results from the FIA data: In the Headwaters area there are over 1,050 FIA plots. One measurement that is obtained on the plots is site index. Analysis of these values on northern hardwood plots reveal that a large percentage of northern hardwood stands are in the site index range of 60 – 70 ft. Stands with a high site index such as this are considered high quality northern hardwood stands. A chart of these statistics is below.

## **Discussion:**

Analyzing the results of both the FIA and DNR's small sample of site index values is only one factor in deciding on a management regime. Site index can be very high in some stands within the Headwaters area. However, there was one stand that had a lower site index for sugar maple and the habitat type was AVVb. This stand in particular had a variety of mid-tolerant species, a possible candidate for even-aged management. When measured properly, site index remains the primary estimate of forest site productivity.

Forest managers often need a better understanding of how various site index estimates are derived and how they relate to other stand data.

**Figure 1. FIA Chart of Site Index from the 6 counties in the Headwaters Area**

