

**Project Subject/Title:** White Birch Release – Antigo

**County:** Llanglade

**TRS:** T33N, R11E sec 29

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**Type of Prescription:** Release

**Year Initiated:** 1994

**Abstract/Prescription:**

In 1981 an aspen/birch stand in Llanglade County was clearcut. Initial regeneration count was documented at 20,000 sprouts/ac. In June of 1994 twenty white birch clumps of stump origin were located. Ten of the 20 clumps were randomly selected for release. The release was performed by hand cutting surrounding aspen competition 10 feet on all sides of the birch clump. The other ten clumps were left as a control. Then all 20 clumps were thinned to the 3 dominant stems in the clump. After six growing seasons (Nov 2000) the birch were remeasured.

**Results:**

**Stem Diameter:** Unreleased trees averaged an increase in diameter of .26 inches/yr.

Released tree stems averaged an increase in diameter of .94 inches/yr.

**Tree Height:** unreleased trees averaged height growth of .88ft/yr

Tree released sites averaged 2.17 ft/yr.

**Discussion/Recommendations:**

Released stems showed superior growth compared to the stems that were not released.

The most noteworthy is the height growth in released treatment.

Aspen definitely competes white birch sometimes to the point of exclusion.

**Site/Conditions:**

**Habitat Type:** ATM

**Covertime:** Aspen

**Enclosed data document**

# BIRCH RELEASE DATA

White birch has been a significant portion of the co-dominant overstory of northern Wisconsin. It has been systematically discriminated against in the northern hardwood mix through selective removal based on species rotation age. Where it exists as a component in a mix with aspen, the stands have typically been rotated through clearcutting. The resultant regeneration stand has a high degree of variability as to the proportion of white birch seedlings. Some stands may run as high as 20% white birch while others are represented by a few scattered stems. It is these clear-cut stands that will be addressed in this experiment

Though white birch occupies a certain portion of the regeneration, it is my contention that the severe competition with neighboring aspen stems will eventually kill off the slower growing birch or seriously retard growth to the point that individual birch stems occupy no greater than intermediate crown class thus eliminating them as viable seed producers. This has implications from both a forest management and wildlife habitat perspective. Not only are well developed crowns important for seed production for regeneration but also supply a major food source for ruffed grouse, migrating redpolls, pine siskens, and other songbirds. Aesthetic considerations also play a large role in determining the need to preserve the birch as a codominant for the next rotation for both the private landowner and sensitive public lands.

In order for white birch to be a management option at the next rotation age, a portion of the birch stems within the clear-cut area must be fully released from competition in order to ensure both their survival and their development to a co-dominant crown class. The exact timing of this release should be at or near the time when the white birch growth rate begins to slow down significantly due to the aspen competition. The age at which this occurs is also highly variable with some overtopping occurring as early as 10 years and some stands showing much less aspen competition until a later age.

In summary, the actual test is for survival and retention of adequate, viable seed production in released vs. non-released stems.

## METHODS:

The stand is an ATM site typed as A 0-5<sup>3</sup> with a clear-cut origin year of 1981. Stand densities are typical for an aspen/white birch clear-cut in the area with initial aspen sprouts likely exceeding 20,000 sprouts per acre. In June of 1994, 20 white birch clumps were located along a 350 foot north traverse from a known starting point. The birch clumps are of stump origin. Crown class for the birch was between intermediate and co-dominant, the exact situation I felt would benefit the most from a release situation. Ten of the twenty clumps were then randomly selected for release. Release was performed by hand cutting surrounding aspen competition providing complete release to approximately

# White Birch

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10 feet on all sides. The other 10 clumps were left unreleased. All 20 clumps were thinned to the 3 most dominant stems in the clump. Original 1994 data is shown in Table 1. Note: Preliminary tree data is very similar for released vs. unreleased stems.

## RESULTS:

After six complete growing seasons, the birch were remeasured in November of 2000. Comparative data is shown in Table 1.

Table 1. Summary of birch clump data comparing release vs. non-release.

Clump Treatment	Data Result	1994	2000
Released	Avg. DBH (in.)	2.17	3.11
	Avg. Ht. (ft.)	30.35	43.4
Unreleased	Avg. DBH (in.)	1.99	2.25
	Avg. Ht. (ft.)	30.11	35.4

Diameter Change: Unreleased trees showed an average increase in diameter of .26 inches (.04 m.a.i.) compared to an average increase in diameter of .94 inches (.16 m.a.i.) for released stems.

Height Change: Unreleased trees showed an average growth of 5.29 feet (.88ft/yr.) compared to an average increase in height of 13.05 feet (2.17 ft/yr) for released stems.

## CONCLUSION:

Released stems showed superior growth rates compared to the stems that were left unreleased. Though this is to be expected, the most noteworthy difference may be the advanced height growth, which has kept the released stems in the co-dominant to slightly intermediate crown class. Unreleased stems continue to become more overtopped with time.

Other than supporting original suspicions regarding competitiveness, a conclusion can not be made yet. Though this preliminary data suggests that unreleased birch will die back to a point that they are no longer a viable component of the stand, the trees are still alive at this point. A final conclusion must wait until the next rotation age to see if, indeed, the unreleased stems either died or became totally suppressed. However, based on the observations of only six years of growth, the released stems are much more robust and vigorous which supports the recommendation that birch can and should be released from competing aspen stems in clear-cut situations in order to preserve this vital species for the next rotation.