# Northern Hardwood

**Project Subject/Title:** Washburn Northern Hardwood Gaps and Ironwood Mowing

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**Abstract:** An all-age regeneration harvest was prescribed for a northern hardwood stand in northeast Washburn County. Approximately 1-2 gaps per acre were established to encourage northern hardwood regeneration by opening up the forest canopy, allowing sunlight to reach the forest floor. After the harvest was completed, mowing within the gaps was conducted to help reduce the amount of competition from ironwood. Mowing was believed to be one potential option for controlling the ironwood which has been a limiting factor in northern hardwood regeneration harvests throughout the area.

**Trial Location:**

**County:** Washburn

**Township:** 42N **Range:** 10W **Section:** 21,22

**GPS Coordinates: Lat:** 46°6'20" **Long:** -91°37'0.5"

**Property Name:** Washburn County Forest

**Baseline Stand Data**

- *Cover Type:* Northern Hardwood
- *Acres:* 119
- *Habitat Type:* ACaCi
- *Soil Type:* Stanberry sandy loam, very stony
- *Year of Origin:*
- *Total Height:*
- *Site Index Species and Site Index:*
- *Mean Stand Diameter:*
- *Total Basal Area per Acre:* 70
- *Other stand Condition:* Seasonal skidding restrictions-winter logging area.

## Prescription and Methods:

- *Type of Prescription:* Thinning with regeneration gaps.
- *Year Initiated:* 2007
- *Establishment Methods:*

The stand was selectively marked for cutting with 1-2 gaps per acre. The gaps were approximately 60-70 feet in diameter with 150 gaps in the stand. Within one year after the harvest, the gaps were mowed in attempt to set back the ironwood competition. The total cost of the mowing treatment was $1,882.68.

- *Data Collection Methods:*

The stand was revisited 6 years after the mowing, in 2014. Mil-acre regeneration plots were established in both the gaps and in the areas outside of the gaps. The plots in the gaps were taken in the approximant center of the gap. Ironwood competition, herbaceous competition and deer browse were also monitored throughout the stand.

**Results:** Competition from ironwood was set back in the gaps to a certain extent. Sugar maple, aspen, and white ash were the dominant regenerating species yielding 1,143 stems/acre, 1,357 stems/acre and 714 stems/acre respectively. Red maple, red oak and American basswood were also present in the plots taken within the gaps. The total amount of regeneration was 3,786 stems/acre.
Outside of the gaps, sugar maple and red oak were the dominant regenerating species yielding 857 stems/acre and 429 stems/acre respectively. Red maple and white ash were also present in the plots. The total amount of regeneration was 1,714 stems/acre.

**Discussion/Recommendations:** Regeneration in the gaps was very spotty. In some areas there was little to no regeneration present and in other areas there was dense regeneration. The mowing appeared to set back the ironwood and release the existing hardwood regeneration. Despite the mowing, there were areas where ironwood was still dominant and was a heavy competitor along with rubus species. Crown cover of residual trees expanded around the gaps.
Outside of the gaps regeneration was somewhat sparse and limited by severe deer browsing. Regeneration was shorter as a result of crown cover and the amount of deer browse. Sedge was also a severe competitor throughout the stand and especially in the areas outside of the gaps.