

Marinette County – Ironwood & Beech Control with root rake

Project Subject/Title: Ironwood and Beech Control in a Northern Hardwood Shelterwood (Firelane Road)

Contact Person: Dan Mertz or Marinette County Liaison

Abstract: *In early September of 2020, a heavy understory of ironwood and beech saplings in a Northern Hardwood Sawtimber stand on the Marinette County Forest was trampled using a DNR Fire Control dozer with a DNR root rake attached to the straight blade. A total of 33 acres was treated pre-harvest in a shelterwood which is anticipated to be harvested in 2022-2024.*

Trial Location:

County: Marinette

Township: 36N **Range:** 20E **Section:** 36 (NE ¼)

GPS Coordinates: Lat: 45.547195 Long: -87.943729

Property Name: Marinette County Forest

Site Map: Attached

Baseline Stand Data:

- *Cover Type* **NH 15+(3)/NH 11-15(2)/NH 5-11(1)**
- *Acres* **33 Acres**
- *Habitat Type* **ATFD**
- *Soil Type* **Emmet Fine Sandy Loam**
- *Year of Origin* **Oldest Sawtimber is 90 to 120 years old**
- *Total Height*
- *Site Index Species and Site Index*
- *Mean Stand Diameter* **17 Inches**
- *Total Basal Area per acre* **121**
- *Other stand conditions* **Predominant species are old, low quality sugar maple and basswood. Many sugar maple have porcupine damage. Scattered beech poles and sawtimber are present. Beech has been discriminated against since the 1970's. A significant component of ash sawtimber consisting of 17 basal area, which will all be cut. Scattered yellow birch.**

Prescription and Methods:

- *Type of prescription* **Mechanical Site Preparation Pre-Harvest**
- *Year initiated* **Early September 2020**
- *Establishment methods (timing, equipment, etc.)* **DNR Fire Control Dozer with root rake.**
- *Data collection methods* **Data was collected using standard DNR forest reconnaissance methods. Sapling counts were determined using 1/250 acre plots.**

Results: *There are no results to report on yet since this trial was initiated in early September 2020 and this write up is occurring in December of 2020. The timber has not been sold yet, but is planned to be sold in fall of 2021.*

Discussion/Recommendations: The Marinette County Forest has virtually no desirable regeneration on its 20,000 acres of Northern Hardwood timber type. Single tree selection has not worked. Many stands in the last 20 years have developed an understory of ironwood and in some areas, beech. Different regeneration methods must be tried and the ironwood/beech understory needs to be dealt with.

A few stands on the Marinette County Forest are candidates for the shelterwood regeneration method. These stands contain predominantly low quality sugar maple sawtimber and in some cases, large amounts of white ash sawtimber which will die soon due to EAB. This presents opportunities for experimentation with the shelterwood regeneration system.

The Firelane Road stand which is being treated in this trial, was last harvested 25+ years ago, in the early 1990's. Since then, a heavy ironwood and beech understory has developed. Regeneration plots show the following amounts of ironwood and beech:

Ironwood	500 seedlings and saplings/acre
Beech	980 seedlings and saplings/acre

There is virtually no sugar maple regeneration. This is noteworthy considering it was last logged 25 years ago and in some areas the canopy was opened up a lot by the removal of large crowned trees. The ironwood and beech saplings are typically 1 ½ inches DBH and 15-20 feet tall. There are also seedlings of beech and ironwood present.

The stand was marked for a shelterwood, trying to achieve a 60% crown closure. Crowns were measured to determine a rough spacing of trees. Spacing of large crowned sawtimber trees was about 35 feet and small sawtimber trees were spaced at about 27 feet. The cut off between large and small sawtimber was determined to be 17 inches DBH. Spacing was not as perfect as desired since in spots, a heavy ash

sawtimber component created larger canopy gaps than desired. Since EAB will kill these trees within the next 10 years, all ash are being cut. In spots where the ash component was heavy, an effort was made to retain pole sized sugar maple to try to maintain some shade. Yellow birch trees, although not too common in the stand, were somewhat favored to try to maintain that seed source on the site. Post shelterwood marking basal areas revealed a basal of 55, which is very close to the target crown closure of 60%.

This 33 acre shelterwood is part of a larger northern hardwood timber harvest. Across the woods road from this shelterwood is a northern hardwood “thin”, although with the ash removal, large canopy gaps will be created on an irregular basis. The heavy ironwood and beech understory is not being treated in the thin area, so this will provide a side by side comparison with the shelterwood area.

THE INTENT OF THE SITE PREP WAS NOT to uproot the undesirable or scarify the soil surface, although some of this did occur. The intent was to lay the stems down on the soils surface and scar the stems up. Some of this work was done a few years ago on the county forest and the iron wood and beech “fizzled out” as they lay on the ground, scarred up. So, this method seems to hold some promise.

THE DNR ROOT RAKE was attached to the dozer blade and the teeth proved to be useful for “grabbing” ironwood and beech saplings in difficult to reach spots between trees as the dozer was moving forward. The combination of the root rake and the dozer tracks laid down and scarred up a lot of undesirable saplings. The production rate of the dozer was about 1 acre per hour. The dense understory was certainly a factor affecting visibility in the stand.

Map

Ironwood and Beech Control in a Northern Hardwood Shelterwood (Firelane Road)



NE 1/4 Section 36, T36N-R20E...Town of Beecher
Marinette County Forest

