Project Subject/Title: Jacobs Birch Shelterwood
County: Oneida
TRS: T39N R9E Sec. 16

Contact Person: John Gillen, (715) 365-2634
Type Of Prescription: 1 Step Shelterwood
Year Initiated: July 2008

Abstract/Prescription:
The property is 40 acres of private land that was entered into MFL in 2007. In December of 2007 a 12 acre birch shelterwood was established. The stand of birch was 70 years old, site index 58, and the average DBH was 11 inches. The goal was to try and leave 20% crown closure (mostly birch). A lighter crown closure was desired because I felt it would be nearly impossible to return to the stand to remove the overstory once there was an adequate stocking of seedlings. The site does have rolling terrain and is fairly steep on the east side of the sale area. The soils are Sayner loamy-sands and PArVAa habitat type.

2007 Timber Sale Cruise

87ft^2/ac BA, 23 cords/ac, 8ft^2/acre residual BA left

BW 43.8ft^2/ac	139 cords
MR 28ft^2/ac	76 cords
F 12.4ft^2/ac	24 cords
A 3.3ft^2/ac	8 cords

*Aspen was in 3 of 20 plots, with 1 plot containing the majority of the trees, other 2 had 1 tree each. The aspen was cut.

The sale area contained a lot of non-merchantable balsam fir (estimate 1,000+ saplings/acre). There was a lot of snow on the trees when the sale was established, which made it vey hard to see the tops of any trees. The density of fir also limited the visibility of the birch tops. An ocular estimation was done to determine what trees should be left, and at what spacing. All oak, pine, spruce, and hemlock were designated to be left. There was very little ground cover (sedge, grass, etc…).

An adjacent 10 acre harvest also took place. About 6-7 acres of this area will regenerate to aspen. The rest of the area has large red and white pine remaining at @ 70ft^2/acre BA. The hope is that deer will concentrate on feeding on the aspen and not on the birch. At minimum, there are at least more acres of food for them to wonder through.

Results:
The sale was harvested in July 2008. A Fabtek tracked processor and a Fabtek single bunk forwarder were used on the sale. All fir greater than 1 inch in diameter was required to be cut or destroyed. The logger did a great job of taking all of the fir down. Some soil was exposed with the logging equipment, but not enough to regenerate birch consistently throughout the stand.

There was normal precipitation during the harvest period, and it appears as though there was a very good birch seed crop.

2008 Post Sale Cruise
A Geographic Resource Solution (GRS) densitometer was used to determine that the residual crown closure was 12-14%. Mostly birch, but there were 2 red oaks, 3-4 white spruce, and 1 hemlock also left.

A crown from an average diameter birch was measured, and it was determined that the majority of the trees had a 20 foot by 20 foot crown. Based on the average crown diameter, a birch leave tree should have probably been left every 45-50 feet to attain a 20% crown closure.

Site Preparation
Site preparation was conducted with an anchor chain on July 28th, immediately after the sale was cut. The Fabtek forwarder was used to pull the anchor chain. About 10 acres were treated. The rest of the area either had too many tops to go through or the terrain was too steep for the machine to work on while pulling the anchor chain.

The anchor chain cost $10/acre to rent and the logger charged $100/hour for his time and machine. One pass with the anchor chain was conducted. It took 6 hours to complete the 10 acres. The total cost for the site preparation was $700. I estimated that about 80% of the site was adequately scarified.

Discussion/Recommendations:
Six random permanent plots have been established in the sale area. The plots were located in areas that varied by the amount of scarification and by crown closure. Birch seedling establishment will be evaluated annually for at least 5 years. Hopefully we will be able to determine if 12-14% crown closure is enough to protect the birch seedlings or if opening up the stand more was better for seedling establishment.

There is no plan to harvest the leave trees.

Birch seed from downed and dry stems was collected and will be planted locally to see if it was viable or if the trees were cut too early and now the seed is just drying up. The seed was collected from tops that were harvested first (around July 10-15th). Lots of flying seed was observed whenever tops were kicked (prior to the anchor chaining).

Initial Thoughts
- Maybe made mistake of having aspen cut, but not much within the stand. There may be a couple areas that come back dense with aspen.
- Before marking leave trees, measure the crowns of the trees to determine the average crown coverage so you know the distance between trees that you must leave to achieve the desired crown closure.

- Make it mandatory that the sale is cut in late July-September and that the anchor chain is pulled by the contractor who buys the sale. Timing of seed dispersal and exposing mineral soil may very well determine the amount of success. There are millions of birch seed on the ground of this sale that are now incorporated into the soil. Are the seeds viable or were the trees cut too early and the seed was not able to fully develop? Will the leave trees provide enough seed and enough protection?

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